Reciprocity: the Country visiting the City.

IS it fair that we should be always harping on the advantages that citizens derive from the country? That we should ignore the pleasures and information which may be obtained by country folks, however refined, in a visit to the town. Are we not too much in the habit of hugging our own enjoyments in rural occupations, and of looking askance at the "poor souls" confined in that penitentiary composed of brick walls hung with birds in cages?

Perhaps it is so, but the country people cannot be accused of undervaluing those advantages which a city afford. A London alderman at a city feast drank with gusto the toast of "the blessings of Providence," with an "Ah yes—that is where our turtle comes from;" in allusion to the island of New Providence, famous for its export of *the* material for soup! So we who "go to town" for our books and other mental condiments, should not look down upon the spot which not only fills our heads with information, but also supplies us with the true "fashion," whether of manners or ribbons. But we are afraid the majority of country people visit town to be amused or to shop. An opera sung by the woodrobin and blackbird we do not enough consider as amusing as the notes of the newest *prima donna* or the everlasting bones and jokes of the white-nigger, whose occupation seems to have taken root and to flourish better than some of the foreign evergreen trees. Music is the product of closely packed communities; in the country we have to be like the French author, who said when he wanted books, he made them himself!

But great cities are also the great storehouses of Art and Knowledge. In America, we have the Dusseldorf Gallery, &c., if we have not much in the way of the most world-renowned pictures to study; we are fortunately situated in regard to books, and can have, and do have, as good books and more easily accessible libraries, cheaper printing, and a more general love of reading, than the old world can boast. True, masses of the books that are disseminated among our rural population are worthless, but appreciative persons are growing up in every section who can distinguish the good from the bad, and these love a trip to town; their "bundle," if you will notice it in the car, is not composed entirely of bonnets or hats, seeds or baskets, but contains material for thought and study. A good turn-over of a well-furnished book store, is to our notion, a better preparation for a rainy day in retirement, than a morning passed in pulling to pieces the shelves of Stewart, Levy, or any of their compeers in Broadway or Chestnut street. Then there are natural history museums, such as the Philadelphia Academy of Natural Sciences, where all the known birds are collected and displayed in the perfect beauty of their plumage and attitudes, and in greater variety than in any other city; where are assembled specimens of the world's geology and botany, and a vast amount of the true scientific books which the best students of nature have left us as their gift of wealth for generations. There may mostly be found the learner, drinking in bit by bit the scraps collected by previous searchers, combining, adapting, and appearing to quench a thirst, which, however liberally fed, is unquenchable, when once

the mind begins to expand and survey the Creator's works with an enlightened eye.

To cities, then, we must resort, and forget their disagreeables, in order to bring home materials to wear and to read. Lectures may be heard to advantage there which cannot be listened to in the country, though for our own part we prefer to *read* six or ten, which we can do in the time required for *attendance* on one.

In the city too, may be found the best productions of the country, there centered as in a mart where all can see and be satisfied; it is, in reality, no uncommon thing for the suburban farmer to send to the city for choice productions which he has not succeeded in raising quite as well as some one else; a piece of fine beef, an ice, or a pine apple, often make their way to the farmers who might be supposed to possess at least the two first in their own neighborhood. An exchange is thus perpetually going on, to the advantage of both town and country.

There is one drawback to country people in their trips to town which needs a remedy. Citizens can come to rural scenes and obtain boarding for five dollars a week, more or less; but when rurality is to be exchanged for the city, especially in winter, the best boarding houses are either filled, or so expensive as to repel, rather than invite one; and two dollars and a half a day at the hotel counts up faster than the potatoe or parsnip crop will admit. Ladies too who visit the city for a day or less are sometimes sadly puzzled to get a respectable dinner. Their modesty will not permit them to obtrude on a private family, and as a general rule our American towns are very imperfectly supplied with good private restaurants.

What we sadly want is a system of "furnished apartments," such as you can hire for a dollar a day, (including a sitting and bed room,) with the privilege of purchasing from the owner any description of food you fancy or require at moderate charges. You can breakfast on tea, bread and butter, or toast and an egg, for twenty cents in very aristocratic lodgings in any part of the continent of Europe, while if you stop at the Girard House or the Clarendon, very likely you have to pay a dollar, though you take nothing more. This European plan creeps in by degrees in Philadelphia and New York, but has not yet become so common as to give one a choice either of locality or accommodations. Thousands of country people would like very well to pass two or three of the colder months in city society and surrounded by city comforts, books, pictures and music, but can find nobody who is willing to take moderate compensation.* Travellers are paying *daily, by thousands*, twice as much as the worth of what they receive in the way of food and accommodation. If persons in moderate circumstances would receive such during the travelling season in their houses, space would be left in the same apartments in the winter, when the rush of travel is over,

* The political economy, (we use these words for want of better,) of the matter is to be considered. These exteriors of houses are so well finished, and the furniture so costly and well polished, for gullible people to see. We are just as comfortable, and more so, writing on an old friend of a desk, and wearing a most easy office coat, and using the light of a window pierced in a stone wall, as if the desk was of malachite, the coat trimmed with gold lace, or the window ornamented outside with lapis-lazuli. It is well to take pride in the possession of precious and enduring things, instead of perishing things. We never could see the comity or appropriateness of lodging travellers, who at home live in wooden houses, in marble caravanseras, whose annual rents would purchase a principality. The interest of the money expended on the outside would be much better employed, in some instances, in the utmost attention to cleanliness within. We should not then hear of infested beds, and nests of mosquitoes and expensive ornamentation without. We never enter a marbled-faced hotel without a feeling that on our next visit we may find it tumbled into the street to make way for something even more polishly costly, in obedience to the so-called *progress* of society. Take off the interest of what is for show only, and extend the sum for comfort. Many hotels are not deficient in this quality, but they could give the same accommodation for a third or fourth less if they would give up mere *outside appearances*.

for those who cannot endure cities when nature is dressed in her best. We have remarked abroad extensive arrangements of this kind. Knowing travellers on a tour of pleasure in Scotland, for instance, are picked up at modest private-looking houses, where a clean bed and a good breakfast have been furnished for shillings, where the hotel has taken dollars for nothing more whatever. There should be no complaints of want of occupation, when such sources of respectable independence are open in all cities for honest people.

If it is the particular province of our Journal to look most to rural and suburban affairs, we are still too dependent upon cities not to feel an interest in what is going on there. Country people pay no small portion of the store-rents in the city: connected with this subject, we have a word to say. A custom prevails in America of paying very high rents for places of business when there is no necessity for such enormous outlays. Not to be invidious, we would ask why the business of selling paper hangings, taking this as an average amount of trade, should oblige the vender, to be successful, to pay three or four thousand dollars for his store. Every piece of paper hangings he vends must have a charge upon it for this rent, which the purchaser must pay, while if his business stand was in a more private street, and the rent four or five hundred dollars, we might all get a corresponding reduction, or he might obtain a greater profit. This, and a hundred other instances might be adduced, in which not only the citizen but the countryman is unnecessarily taxed. The mechanical dentist must occupy a palace, even if he cannot afford it, or he may be *thought* to be unsuccessful. The price at hotels has already been alluded to; there is no good reason why we should be lodged for a day or two in passing through a city, in its most costly thoroughfare, though to be near it would certainly be convenient. Thirty thousand dollars of rent obliges the landlord to look sharp after his income, and induces him too often to charge extravagantly; he not unfrequently makes out a bill to a traveller who arrives at twelve o'clock at night, that includes an uneaten and undesired supper, simply because it is *on the table*, and you can have it if you ask for it, which you do not; for this and a bed and a breakfast, if you leave after the earliest dinner hour without partaking, charge is not uncommonly made of two dollars or two dollars and a half. The proprietor *may* be right to do this, if people will submit to it, but the whole thing wants revision. We want clean, comfortable accommodations when obliged to remain in town for a few hours, and we want them at fair remunerating prices. An easy bed and a scentless pillow are of more importance than marble or Pictou stone outside; and a recent trip to Niagara Falls induces the remark, that it would be infinitely better to lengthen the bedsteads and put a bureau in the rooms, while the music at the dinner table was shortened to furnish the means.

Every traveller on the continent of Europe may see stores in back streets containing hundreds of thousands of dollars worth of goods, where the rents are one-eighth, and the business transacted eight times as large as in many of the flashy stores of Chestnut street or Broadway; the consequence is, you there get merchandise at moderate prices. For fancy goods in America, it may surprise some country people to learn, we pay from four to eight prices beyond their original cost. Such a thing brings such a price in Broadway, and the retail dealers all over the town take their cue accordingly, and prices are high everywhere. We know the answer is, that goods are as cheap in Broadway or Chestnut street as anywhere else; but if

there was no Chestnut street or Broadway, they would be cheaper everywhere.

Country folks and travellers are sadly treated in cities and at hotels; it is a branch of public economy that will regulate itself perhaps in time, but so thoroughly convinced are we that some classes *like* the impositions, that were we anxious to make a fortune in haste, we would face a palace with cornelians, purchase a service entire of gold plate, rig out our servants in full livery, and charge five or six dollars a day; depend upon it the patronage would be unprecedented. Seeing this, we do not condemn the paper hanger who pays the high rent, nor the hotel keeper who makes out such enormous bills; we condemn ourselves and our countrymen who patronize and encourage unwarrantable outlays in the forms we have indicated. Till the people themselves will enforce a change, they deserve and will continue to be fleeced. But this we do say—there must and will soon be a reform in hotel accommodations, and consequently a reduction of prices. We shall then have what we want, clean beds and wholesome food; the country will then reciprocate the visits of the citizens, and we shall become a more homogeneous people.

A FEW HINTS ON CHURCH BUILDING.

BY F. C. WITHERS, ARCHITECT, NEWBURGH, N. Y.

IN going through our country towns, it is almost a matter of impossibility to recognize the churches, from the fact, that, so little attention having been paid to their characteristic features, it becomes a matter of uncertainty whether the building which one sees, with its white-painted wooden portico, and long windows filled with green shutters is a church, a court house or a private dwelling, all being built after the same model. Every building should be so designed that a single glance may be sufficient to decide its purpose. A church with its heaven-pointing spire, or less pretentious bell-cot, with its mullioned windows and open porch would offer such a contrast to the surrounding buildings that no one could easily mistake its intention. It should stand in as conspicuous a place as possible, thereby implying that the first or most important thing in men's minds was to furnish a place in which to worship the Deity; and this building should be set apart for that purpose *alone*, and never—as is too often the case—resound with boisterous laughter caused by a popular lecturer's anecdotes. It should be built of the best materials the locality affords. Stone for the walls is the best, but where this cannot be procured, then let brick be used, with no attempt at a disguise—no paint, no cement, colored and blocked off in imitation of stone, for if we attempt to do this we shall undoubtedly fail.

No one in passing through Switzerland and the North of Italy can have failed to be delighted with the beautiful structures which rise on every side; now the majority of these are built of brick, sometimes relieved with stone or marble, but in many cases entirely of terra-cotta; what interest would these buildings ever have awakened in our minds if they had been painted?

None, whatever; and so it is with us, if we would that our works should live after us, and in succeeding generations be looked upon with interest, we must work with TRUTH; we must let this be our motto, ignoring all shams whatever, letting brick be brick, and wood wood; for of what benefit is it, that we put up our windows in iron or wood, and paint and sand them in imitation of stone? It must be to deceive man, for God it cannot deceive. Where it is impossible to get any other material than wood, then it should be built accordingly; buttresses and such like construction which essentially belong to stone, being of no use in wood, should be carefully avoided; nor should the paint which it is necessary to put on the outside be anything more than quiet colors in harmony with the surroundings of the building.

It seems to have been the prevailing idea that the ancient heathen Temples are the best models for our churches, instead of which they are really the worst; for, in the first place, The Portico, with its monotonous repetition of column,—copied perhaps from the Parthenon—made of wood and painted white, is inconvenient; it neither affords protection from the sun, nor from the pitiless blast of a winter's storm; and, in the next place, to reach the church it is necessary to climb some eight or ten steep steps, rendering it extremely difficult for the old and infirm, (for whom it should be the first duty of the church to care,) to ascend; especially in the winter when they are generally covered with ice and snow. On reaching the platform, one sees doors, apparently of enormous size, but which on inspection are found to open only half the way down, because perchance the gallery for the "colored population" interferes. The windows are long and wide, so much so, that if the light, even in the darkest days, were not obstructed by the green blinds, it would be impossible to sit in the church with any degree of comfort. The walls are high, and the plastered ceiling flat. These are mistakes our church builders commit, for if the walls were lower, and the pitch of the roof higher, the point of the ridge might remain the same, and instead of an ugly high building without any apparent covering, the effect of the change would be most striking, and the very feature which it is the desire of Grecian architecture to hide, would stand out prominently and distinctly, conveying an idea of shelter, besides being more adapted to the climate in shedding the rain and snow, than a roof of a low pitch. Another fault, and which is especially to be condemned, is the putting the school room underneath the church; for if the room be above ground, it must necessarily spoil the effect of the building, and if below it, is unwholesome and dismal, and cannot but give a disagreeable impression to the poor children who are compelled to sit in it.

There is no doubt but that Gothic architecture is the most suited for churches, for this style has the advantage over every other in its applicability to all sites and requirements; it is far more picturesque than any other, and if properly built cannot fail to impart some feeling of respect and awe. There is scarce any one who has walked through an old Gothic church without experiencing some such feeling, which is doubtless in a great measure attributable to the style of the building.

In the selection of material, care should be taken. Stone of some description is generally procurable; and this, however rough, may be used for the walls, for it is not in the least essential that the outside should be smooth, since then no contrast is offered between that and the inside. The quoins, windows, doorways, &c., should however be dressed, and if possible a cou-

trast in color may be used ; for instance, where the main body of the walls is of a blueish tint, then a grey stone, used as above indicated, will be found to have a pleasing effect. Where, however, stone cannot be obtained, then it becomes necessary to use brick, and if only stone can be used sparingly for string courses, buttress weatherings, &c., it will give it a more important appearance, besides breaking up the dullness and monotony of the bricks. If the walls are of stone, a half-brick wall should be built on the inside, leaving a hollow space of at least three inches, which may be bonded together with iron or brick ties, this will allow the plastering to be placed immediately on the brickwork, and be found entirely successful in keeping out the damp. Where bricks only are used, the walls should also be built hollow.

Slate seems to be the best material for the roofs, and where these are laid in patterns with slates of two different tints, they look well. Undoubtedly the best covering, (but which unfortunately is unknown in this country,) is tiles ; these are made, and most generally used in England in preference to slates ; they make a most beautiful covering, and the joints being of the thickness of nearly an inch, give a great many lines of shadow. Shingle should never be used, saving where the building is of wood, as they never last more than thirty years.

The roof should in all cases, where possible, be exposed to view from the inside ; its timbers should be wrought and moulded, and when nothing better than white pine can be obtained, a little stain, to bring out the grain of the wood, should be used ; paint as an imitation of another wood, never. In all cases where the timbers are shown, it will be found to be absolutely necessary to have a space of at least six inches between the boarding and the outer covering, and this may be rendered more effectual in keeping out the cold and heat by filling the space with saw-dust or some other such like non-conductor.

The plastering which it is necessary to put on the walls, should be in rough stucco of a light cheerful tint, but in no case jointed to imitate blocks of stone.

The windows should be glazed in diamond quarries in lead, and if possible, stained glass should be used, not only for the purpose of decoration, but to do away with the necessity of outside or inside blinds. Stained glass can be obtained from one to six dollars per superficial foot.

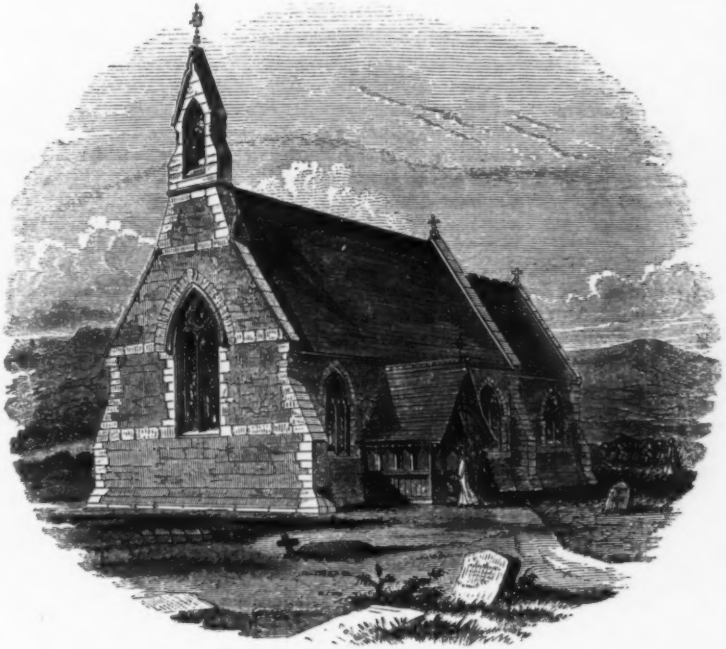
The seats should be open, with moulded bench ends without doors, raised some three or four inches above the passages, which should, if possible, be laid with encaustic tiles.

The engraving which accompanies this, is intended to illustrate an Episcopal church suitable for a small congregation. The plan will be found to consist of a Nave, Chancel, Robing Room, and South Porch ; the material employed should be rubble stone laid in random courses, with free stone quoins, window and door dressings, &c. ; additional effect may be obtained by introducing bands of the free stone at the cill and springing of the windows, &c. The Bell Gable marks distinctly its purpose, and is far preferable to an attempt at a tower and spire where, (from a lack of funds,) it has to be built of wood. The Porch, which is open, should be of oak, unless the church is in an exposed situation, when an inclosed one of the same material as the body of the church should be used.

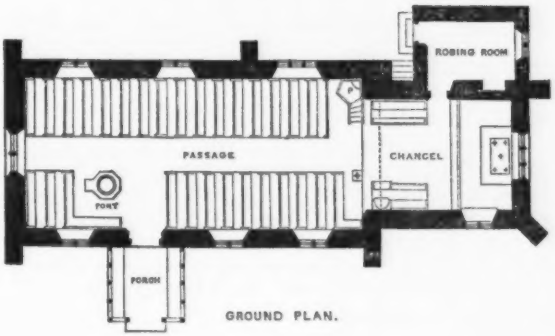
The Chancel should be separated by an arch of stone, consisting merely of a couple of chamfers, and should be raised one step of six inches at least.

DESIGN FOR A CHURCH.

F. C. WITHERS, ARCHITECT.



SOUTHWEST VIEW.



GROUND PLAN.

The correct place for the Font would be near the entrance as shown on the plan.

The cost of the church would of course vary according to the material used, as well as the locality ; in this district however, it might be well built for about $6000. Accommodation is afforded for one hundred and fifty persons.

LAYING OUT GROUNDS.

BY HOWARD DANIELS, NEW YORK.

I was much pleased with the few words from Mr. William Saunders, in the June number of the Horticulturist, on laying out grounds.

Several years ago, the late J. C. Loudon proposed to re-publish the writings of all the best early English authors on landscape gardening, and procured the copyright of Mr. Repton's works, and re-published them in one volume. With the others he made some progress, but his great work, the "Arboretum," involved him so deeply that he never commenced the re-publication of the older, and, in many respects, the better authors.

These old works are very scarce, and are procured with difficulty at high prices. An enterprising American publisher, who would carry out Mr. Loudon's idea respecting them, would do much more towards forming a correct taste in gardening than all the *milk and water* treatises (compilations?) that have appeared in this country.

Mr. Saunders truly says, "All our essays on rural taste and landscape gardening seem to be deficient in general practical details, while at the same time they do not enter sufficiently into elementary principles."

Mr. Edward Kemp, of Birkenhead Park, has lately brought out a new and much enlarged edition of his little book on "How to lay out a Garden," illustrated with more than two hundred engravings, which can be procured at the office of *The Horticulturist*. This work contains more practical knowledge on the art of gardening than any other book with which I am acquainted. To Mr. Kemp are chiefly due the many fine features and charming effects produced in Birkenhead Park, originally a very unpromising piece of land, but now the finest park of its kind in the world.

ROOTS.

BY PROF. J. W. DARBY.

Dr. Cloud—Dear Sir,—To learn the conditions of success in the pursuit of any object, is certainly a matter of prime importance ; even if success might follow, nine times out of ten, without such intelligence. Merely empirical efforts, when many conditions are combined, add nothing to the general fund of knowledge, and can be of no permanent value. To observe, with the utmost care and accuracy, every phenomena presented in the growth of a plant, adds nothing to our comprehension of the *conditions* of its development. To plant a grain of wheat, or seed of cotton, and record the changes that follow through the periods of its germination and growth,

teaches us nothing with regard to the real influences that have operated to produce these results. To describe the soil on which plants grow, and give every element that enters into its constitution, is of no value unless we knew what elements are the active ones in the production of the desired vegetation. After all this painstaking, one may assert that the influence of the moon was the great exciting cause of all these recorded results. To add masses of fertilizers, and produce large growth, is of little value when the rationale of the action is left out of sight.

A point of the highest import is to determine a single isolated element of success, or point out one injurious or useless agent in our applications. If a plant is growing subject to three distinct agencies, and by the operation of all it will do tolerably well, yet the action of only one of them is the true and only cause of success, one, perhaps, being neutral, the other, we may suppose, positively injurious. To know these facts would certainly relieve the operator of much embarrassment, and make his calling a much more rational pursuit. One single step in this direction of elimination, though a short one, and made with the light of truth shining upon it, is worth a thousand long leaps in the dark, with guidance of complicated experiments, which are perfectly unintelligible to those who make them. *That* one step is a movement forward; the others may be in all directions, and when the thousandth one is taken we may be at the place of starting.

There are facts in vegetable physiology, that should be of the highest practical interest, which influence most materially the results obtained, but for which, so far as we know, they have neither credit nor regard. Does the agriculturist, in the preparation of his ground, ever take into consideration the kind of roots the plants have which he is to cultivate? In his combination, separations or succession of plants for cultivation, is an imperfect element to guide his decisions and operations. Judging from books on these subjects, we should be led to believe that if there was any difference in the character of roots, it was entirely disregarded in practical applications. To see the almost identical directions given for the cultivation of rhubarb and asparagus, for example, is abundant proof of this disregard. Asparagus is a surface feeder, and wants room and not depth, and it will grow luxuriantly, as we have proved by experiment, on a shallow soil, if plentifully supplied with fertilizing matter and moisture. Rhubarb, on the contrary, is a deep feeder, and to develop its proper growth, requires deep cultivation, and will not succeed without it. The active roots of the asparagus are, in the main, but a few inches below the surface; while the rhubarb will be found two feet, if the soil is fitted for it to penetrate so far.

Nature has made the roots of cultivated plants on two models or types, and to one or the other of these types they may all be referred. One of these is a main root, running perpendicularly downwards, and sending off new branches from the top to the lowest extremity, the central axis being always the predominant one through which the nourishment passes. The other type is a more or less complete subdivision of the root, immediately beneath the soil, there being no main axis penetrating downward. The first kind is represented by the branching of any tree, from a main trunk; the latter like that of some shrubs that send up numerous stems with no main axis. The *first* of these seeks its nourishment deep down in the soil, the *latter* near the surface. The *first* draws its nourishment from immediately beneath itself, the *other* literally from a distance. The *first* is not much injured by removing the surface roots, the *latter* wholly depends on them, the upper

always being the most vigorous. No matter how many varieties there may appear to be, nor how many different names the botanist may give to these varieties in describing plants, yet all fall within one one or the other of these classes, or approach more or less clearly these types. The deep feeders called *tap rooted*, the surface feeders called *forciculated*. There is an evident design in these structures, relating most certainly to the conditions of growth and development of the plant.

The above are *facts*, and their application may be made useful in a thousand ways, a few of which we will point out.

If a tree is to be set in the neighborhood of a garden, or cultivated field, the tap-rooted variety should be selected. It will seek its nourishment below the roots of field and garden culture, or it may be made to do so by cutting off the surface roots within the reach of any other plant. The oak, elm, sweet gum, cedar and pine are of this class. The mulberry, china tree and ailanthus are surface feeders, or with forciculated roots, and will destroy all within their reach if they grow thriftily themselves, for in cutting off their roots their growth is checked, unless the soil is very rich.

In planting trees to make the thickest shade, a mingling of the tap-rooted and forciculated will greatly contribute to this end. They may be planted much thicker than either could be alone, by planting them alternately. An oak and a mulberry could both occupy the same space that would be required for either by itself. The oak getting its nourishment deep down in the subsoil, the mulberry feeding at the surface, so that they would not interfere with each other, each growing as though the other was not there. Trees with tap-roots are usually tall and make our best timber, while the forciculated are low, with bushy heads. The one is made to resist the storm, although most exposed, the latter keeps near the ground.

Trees with tap-roots are much more difficult to transplant than those of the other variety, and a different course should be pursued in the operation if we would ensure success. To remove the oak or pine, a deep hole should be dug round the tree, and as near as possible the whole of the tap should be taken up, and the tree transplanted to a hole as deep and as large as the one from which it was taken. But in removing the mulberry, we only need to cut off the surface roots, at some distance from the stem, and turn up the roots and remove the tree to a broad, shallow hole, and the whole is accomplished that is demanded by the nature of the roots. To transplant them with intelligence, we should know with what kind of roots we have to deal. The relation of leaves to roots determine the appropriate *time* for transplanting. Those plants that have active leaves, like all deciduous land plants, can only be transplanted during the season of rest, or before the leaves are expanded in Spring, as the leaves exhaust all the sap at once when the roots are severed. On the other hand, those trees, like all the cone and fir tribes, can but be moved when the plant is in activity, as it is then full of sap and immediately puts forth new roots—the leaves not exhausting the supply of sap.

In planting and making crops, these facts have important applications. Corn is most emphatically a surface feeder, and cotton is a deep feeder. The tendency of corn roots is upward, all new roots in the corn are above the old ones. Those roots that afford it nourishment, that ripens the corn, are the most superficial roots. The roots under the stalk, or first roots, are dead. Cotton is the reverse. The newest roots are the deepest. They are developed downwards, if they meet with no physical obstruction. These

facts teach us that in planting corn, the seed should be deposited at least as low as the ground surface of the soil or land, that the roots may spread out naturally. Cotton, on the other hand, may perhaps be planted on ridges, or elevated beds, as its tendency is all downwards ; it gets more depth by this arrangement. It teaches us the advantage of deep ploughing, for cotton especially, although corn even will be benefited under ordinary circumstances by the same process, although it does not require it if it can be supplied with food and moisture without. The fullest product may be obtained from corn when it is planted on an impervious slate, provided the other conditions are fulfilled. Cultivation should evidently be modified by these different tendencies of roots. It is evident that deep working in corn must be injurious, and it is equally evident that close ploughing, after the plant is well grown, must do harm, by severing the new roots intended to perfect the grain. Neither of these things may be regarded in the cultivation of cotton. Deep and close ploughing may be useful to cotton, if the first ploughing before planting was much deeper. We may modify the development of roots by management, especially in corn. It is a principle in the vegetable kingdom that if you destroy one organ in any place, greater development will take place in the second organ in another. So if you cut off one root, more will issue in another place. Now, corn is readily affected by drought, because its roots are naturally superficial. To diminish this superficial tendency, these upper fibres may be removed by hoeing and ploughing, and deeper fibres will be developed. If this is done while the plant is vigorous and in the earlier stage of its growth and continuously, the corn will seek its nourishment much deeper than is natural for it, and hence when drought comes, the source of supply is not so readily affected as when no such management has been practiced.

We are taught also the benefit of observing the soil around the corn stalk and the uselessness of it in cotton. By hilling up the corn, we supply nourishment to the latest and newest formed roots, provided the soil is taken from beyond the sphere of the older roots. Corn also wants area, as its roots are all lateral, and hence suffers greatly by being too thick. The same is true of all kinds of grain.

In watering plants in our gardens, it should not be applied indiscriminately, regardless of the *kind* of roots we have to deal with. The water for vines, as strawberries, melons, cucumbers, should never be applied to the main stem, but a distance from it, for the mouths are there for drinking it in ; but in the radish, beet, rhubarb, &c., it should be applied directly to the main root, that it may go down the root to the mouths beneath.

Advantage may be taken of this distinction of roots in planting or sowing two kinds of vegetables together. This has long been practiced in regard to herds grass and clover, the former a surface feeder and the latter a deep feeder. It would be interesting to know how this practice originated, whether from reason or an empirical result. The fact has been known, probably, for centuries, although we have never seen a reason for the beneficial results. It is well known that this practice yields a vastly increased product, and the reason, from the facts stated, is evident. The herds grass feeds as though there were no clover, and the clover feeds as if there were no grass.

In the cultivation of fruit trees, these principles are of high practical interest. The nurseryman understands that he can, in some measure, convert the tap-rooted fruit trees into the forciculated. He accomplishes by

this result two objects. One, that his trees will live more certainly when sold. Another, those trees that remain unsold, are kept in a dwarf condition for several years and are fit for sale, which otherwise would become too large. He attains this end by cutting off the tap-root, by means of a sharp instrument thrust under the tree. The tree thus used lives, it is true, but its main root is gone and will never be reproduced. The tree, that nature formed with a strong main root that it might withstand the force of storms and have unharmed its burden of fruit, is mutilated and deprived of its characteristic and essential organ, which by art is replaced by one in no wise fitted for its condition. Who has not experienced this evil resulting from such a practice, that has ever raised a fruit tree? They must be staked or propped up, or they soon stand obliquely or fall down under the weight of fruit. The same course should be pursued in transplanting a fruit tree as in transplanting an oak or pine. We should dig down below the roots, and gather the main root and as many of its branches as possible, and then set it in a *deep* hole; broad, if you choose, but *deep* anyhow. This principle teaches us, also, the earlier fruit trees are set in the places in which they are to grow, the better. If the ground were prepared, and the seed, for the stocks, were planted where the trees were to grow, and grafted or budded, in their natural positions, there would be no falling down or leaning trees, if cared for during the first year or two, and we should have fruit orchards for a generation. The practice now pursued, with a rich surface soil, and only surface roots, the tree *out* of the ground, is pushed forward far beyond any means of support developed *under* ground. The two should correspond, and let nature have her own way and she will make them do so.

In the rotation of crops, in field or garden culture, regard should be had to the kind of roots that succeed each other. The tap-rooted should always succeed the forciculated after fresh manuring. Succeed onions by beets or turnips in the garden; Irish potatoes or beans, by cabbages, parsnips, or carrots.

In the above remarks I do not know but I may have come in conflict with plantation practice in some particulars, but that the principles are correct, there is no doubt, as my experiments, on a small scale, have abundantly proved; and had space permitted, I should have been pleased to have recorded experiments on this subject, especially in the growth of corn and cotton.

In all cases it is presumed that the soil is perfectly broken up, that the whole storehouse of materials is opened to the application of the plant; otherwise the conditions of successful cultivation, of any crop, are not complied with.—*Cotton Planter and Soil.*

ROSES.

Roses vary much according to the character of the season. A Rose which is indifferent this year, and which you feel inclined to discard, astonishes you next year by its beauty; while on the other hand, one that you have thought highly of proves to be worthless on further trial. Thus, last year I had Louise Odier poor and thin in the extreme, very little better than the Celine; my idea was at one time to discard it; however, I let it alone, and this

year it has been very beautiful, full, and brilliant in colour. Had I measured, on the other hand, my old friend Géant by his performances this year I should have pronounced him but a poor leader, for the intense heat completely took away all his brilliant colour; and, again, I have grown for some two or three years Leon des Combats, but I never saw in it anything remarkable; whereas this year it has been especially beautiful. I do not think this is sufficiently borne in mind by amateurs; they do not wait to prove their flowers, and pronounce them worthless, when another season would perhaps make them alter their opinion.

And then *there is the insatiable craving for novelties.*—Have you got any *new* Roses, is the first question put to a nurseryman; if he say no, you at once set him down as behindhand; if, on the other hand, he shows you some, how readily do you overlook many blemishes because they are new; you persuade yourself that they must be much better than the older varieties; you buy them, and after, when better and cooller judgment returns, you find that you have foolishly preferred a new to an old face—a fault not confined to Rose growers.

VISITS TO COUNTRY PLACES.—No. XIV.

Near Princeton, N. J.

OUR series of visits to Country Places has been postponed for the sake of variety, and in obedience to the demands of correspondents. Princeton neighborhood occupied our last notice, but was left incomplete.

Woodlawn, the seat of Richard Stockton Field, Esq., presents so many features of beauty and good planting, that we return to it once more. Its grand feature is the beauty and symmetry of the evergreens, planted comparatively only yesterday, and really only twelve to fourteen years ago. The White Pines are thirty to thirty-five feet high, with proportionate breadth, though two of them have assumed the precise shape of the old Lombardy Poplar, growing into a cone-like form which is entirely unusual, and for which no apparent cause can be assigned.

But the beauty is by no means confined to the White Pines. Mr. Field has assembled such a large family of evergreens as we rarely meet with, and he understands their wants so entirely that all seem grateful inmates; the rarer kinds hold a prominent place; the generally naked *Thuja pendula*, or Japan Weeping Arbor Vitæ, here has really a dense and admirable growth. In juxtaposition with this weeping Asiatic, is the Washingtonia gigantea, the giant tree of California; (in the open centre of one of these trees, in its native haunt, it is practicable to drive a Conestoga wagon.) We opine that this tree will be one of the most rapid growers of all our hardy evergreens, and are happy to say many specimens inspected this spring indicate its adaptation to our northern climate.

Mr. Field's *Abies Frazerii* is about twenty-five feet high, round-headed,

of a beautiful silvery green, and an exceedingly rare specimen. It is very conspicuous among a cluster of an excellent variety of some of our native red cedar ; it requires a nice eye to detect some varieties of this neglected native from the high-priced and *incense bearing* Juniper of Spain.

The dense-headed Austrian black pine makes a prominent feature amongst other pyramidal trees. The Cedar of Lebanon has always been regarded as one of the stubborn foreigners, but here it grows with almost the rapidity of a White Willow ; in about fifteen years it has attained to the height of thirty feet, and stood *all but* unscathed during two late hard winters. One of the causes we ascertained to be the nature of the soil in which it grows ; this is a prominent ridge of a yellowish loam on a subsoil of gravel peculiarly favorable to such evergreens.

Having in a previous article noticed the principal trees of rarity of beauty, we cannot repeat, but it would be unpardonable if we overlooked, (we cannot forget), a plant of Juniperus squamata, the most interesting and curious specimen we have ever encountered. The lower branches form a basin in vigorous growth, with an upright center of about five feet in the exact form of a fountain—an actual evergreen fountain situated in a recess formed by a wing of the mansion. This unique plant would amply repay a connoisseur for a visit to this noble place.

We have another feature in the outline that cannot be overlooked ; the useful has been brought into happy juxtaposition. Pear trees of distinct forms, showing the judgment and care of the proprietor and his assistants, yield abundance of fruit for the home and its visitors. You can from the roads discern the best kinds, and point out the peculiar conical form of the Seckel, the tapering cone-shaped Lawrence, the pyramidal Urbaniste, the large spreading arms of the Duchesse, and the poplar form of the Buffum. This pear tree in the absence of the unwarrantably discarded Lombardy should not be overlooked by the planter who would introduce a useful conical object. It is hinted that the finest Buffum is to give way for the contemplated new pinetum, but *that* one specimen we hope may be spared.

Princeton and its vicinity contains many beautiful places, and is historically interesting from its colleges, and the worthies of note who have successively filled its learned chairs.

Morven, the property of Commodore Stockton, is a fine old place of the times of the Revolution, having been in the family ever since the first settlement of the State. It was a part of a tract of land purchased of William Penn by the Commodore's ancestor more than a century and a half ago, and has now some fine Elms planted by the signer of the Declaration of Independence, Richard Stockton. A row of very large Catalpas, extending more than a quarter of a mile, were in full bloom at our late visit, presenting a magnificent appearance. The proprietor resides alternately in Philadelphia and at the sea-side. Morven has consequently been somewhat neglected of late, and it shows the effects.

Prospect, late the residence of Thomas F. Potter, and now that of his widow, is on a fine site overlooking the county of Monmouth ; the view is so extensive that it is easy to fancy one's self in sight of the sea, which in fact is not very distant. Mr. Potter died soon after the completion of the mansion, which in all its details exhibits the good taste of its architect, Notman, who has introduced a conservatory attached to the house, and a fine grapery now very productive, that adds material beauty to the winter scene ; the grounds possess great capabilities.

Mr. Senator Thomson's residence is almost in the town, consisting of about four acres, well planted and giving many fine effects. A visit to it convinces the eye that it possesses the requisites of a country seat. There is a fine collection of evergreens, a grapery and green house, and everything is kept in the finest order. Mr. James Potter has a place of about the same size; it is also distinguished for its fine evergreens, and has a fine grapery. Here we would remark on the beauty *and gentility* which even a few evergreens give to a rural scene; they warm up everything near; without them, *dreariness* comes over the eye and the spirits.

The places of Richard Stockton, and John P. Stockton, (the latter now our minister to Rome,) sons of the Commodore, are comparatively new, but are largely planted, and their trees are growing finely. Notman's taste is here again apparent.

Of Princeton College, we could say much, but may only note a few of its celebrated Presidents. The first was Jonathan Dickinson, whose appointment was made in 1746, and from whom descended our townsman, the late John Sergeant.

Aaron Burr succeeded Dickinson, having married the daughter of the celebrated Jonathan Edwards; he left a son, the too celebrated Aaron Burr, who in spite of his illustrious parentage, became what we know him to have been. The residence of President Burr is still extant; and the murderer of Hamilton rests near by.

Jonathan Edwards succeeded his son-in-law as President. His reputation is world-wide, and needs no comment here. Samuel Davies, Samuel Finley, Dr. John Witherspoon, Dr. Samuel Stanhope Smith, Dr. Ashbel Green, Dr. James Clernahan, and now Dr. John Maclean, have each and all added to the fame of this celebrated seat of learning, which numbers on its roll of alumni very many eminent scholars, divines, lawyers, and politicians, and is still in the full career of its usefulness.

NEW PLANTS.

Begonia Rex. Nat. Ord. *Begoniaceæ*.—No description can give an adequate idea of this, the most striking of all the Begonias we have seen, which throws every other into the shade, and fully justifies its specific name, being decidedly the "King" of this fine tribe. Its great attraction consists in its splendid foliage, which measures about ten inches across, the centre of a deep olive-green, reflecting a metallic blue, surrounded by a broad silvery white band, which is again encompassed with a wide edge of olive-green. The flowers are also of large size, and rose-colored. It is a native of Assam, where it inhabits the temperate region of the Himalayas, and was discovered by Mr. Simons. Messrs. Rollinson possess the stock, and are about to send it out.—*Botanical Magazine.*

Campylobotris Argyroneura. Nat. Ord. *Rubiaceæ*.—A charming little species, growing six or eight inches high, and closely allied to *C. Discolor*, but distinguished by the silvery nervures of the leaf, the edges of which are (especially in the case of the young ones) margined with rose, and fringed with ciliæa of the same color; their upper surface is of a fine olive or brownish green, with a satiny appearance. It will be cultivated chiefly for its beauty as a plant with ornamental foliage. From Chiapas, where it was detected through the indefatigable zeal of Mr. Ghiesbreght.—*Ibid.*

RUSTIC FURNITURE.—SECOND ARTICLE.

In apple wood, gnarled and bossed into natural rosettes by frequent pruning, and nature's efforts to heal the wounds, will be found material well suited to the purpose of making Rustic Furniture. The old wood of Kalmia from the Southern swamps is much employed in Baltimore, where an extensive manufactory has been established by an individual who began in a very small way, but now supplies a large region of country. Pear, plum, and oak, especially the white oak, are also suitable from the frequent bendings and elbows of their growth. The wood should be dry before working; it may be either used with the bark on and a coat or two of paint applied after the manufacture of the article, or the bark may be removed and the work finished with a coat of "outside" varnish. This is far preferable, as the bark, if the paint is not renewed, is apt in a year or two to separate and peel off. By revarnishing in spring they will look "as good as new." Figure 6 is another pattern of a chair.

Fig. 6.

Figure 7, an arm chair. Care must be taken that sufficient symmetry is preserved. Employ the same means as suggested for No. 6, in the last number. The two front legs, it will be observed, are braced by natural limbs, and the arms have been selected from what would have formed "knee joints" for the ship builder, had they remained long enough in growth.

Flower baskets, such as shown at figure 8, may be manufactured by covering old butter firkins, or other packing cases with split hazel rods, either perpendicularly applied, as trellis, or in any other decorative arrangement; taste in such matters speedily growing with the exercise of the habit of construction.

Fig. 9 is produced by employing the same means with the base, and by taking a hoop to attach upright slats made as fancy may direct or employing hazel rods.

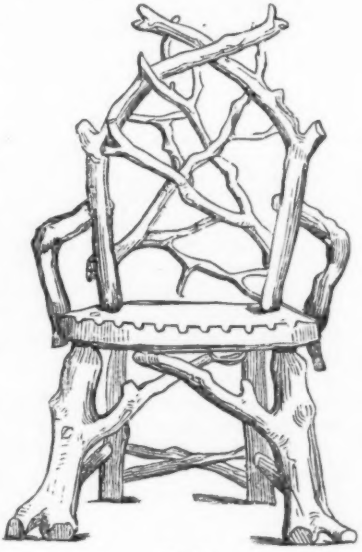


Fig. 7.

The laborer who has tried and succeeded in making some of these simple appendages to his garden will soon be led on to the construction of rustic fences, porches, &c. He will learn to weave the branches into grotesque and picturesque combinations—to pave the floor with pebbles or with short

Fig. 8.

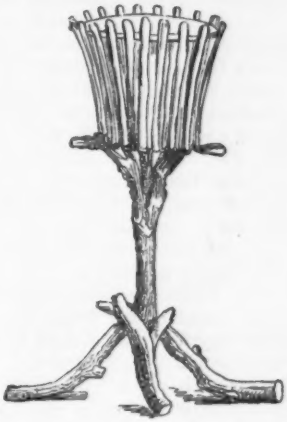


Fig. 9.

pieces of the branch sawn across and placed perpendicularly in sand. With the decoration and improvement of his cottage and garden self respect and comfort in his home will grow, increased by this occupation of his time, and his house will become what it ought to be, attractive to himself and family.

RATS, AND OTHER MATTERS.

Some people believe that Rats take a tenth of the farmer's produce. They are certainly very destructive pests, both in town and country ; the person who would invent a certain mode of destroying them would confer a vast benefit on his species. The only approved methods are to employ tar around their holes and runs, and if possible to catch one of the enemy, tar him well and let him go, or so to balance the top of a barrel that it will turn easily, and deposit the vermin in water. Among the volumes on our table, is the new London book of Francis T. Buckland, son of the geologist, entitled "Curiosities of Natural History," in which we find two capital chapters ; the first, "A Hunt in a Horse Pond," describing the wonders of insect life ; and the second, an "Essay on Rats." On the subject of traps, he says :

"The iron wire cage traps, and the common hutch traps, are sometimes useful in houses, but they soon lose their efficacy, because after one or two rats are caught, the others find out that it is a dangerous machine and do not go into it. The traps then do more harm than good, because the rats smell the bait, come to it from all parts, and, as we have seen, news flies quickly among them, you get your neighbors rats as well as your own into your premises. They play round the bait, but do not go into the trap ;

then, being hungry, both the strangers and the original rats of the place begin foraging about, and make holes in the corn bins, cupboards, &c. The same thing holds good with the fly-papers ; it is true you catch some of the flies, but you get double your share of flies in the room, as they are attracted by the poison placed for them."

Mr. Buckland tells a curious story of "the trumpet rat," which has deceived numbers of naturalists, but at last has been found out. They are manufactured for sale to amateurs ! thus : take two rats, tie their hams firmly on a board, the nose of the one close to the end of the tail of the other ; with a penknife or lancet make an incision into the nose of the rat which is hindermost, and graft it into the incision of the nose ; tie firmly the muzzle to the tail, and leave the rats in this position for forty-eight hours. At the end of the time the union has taken place, and the two parts have grown together ; then cut off the tail of the rat which is in front to the required length, and let him go, but still keep the other tied to the board, but with his head loose, and give him something to eat. At the end of a month or more the wound is perfectly healed ; and the eyes of the most curious would not see a trace of the grafting. This is done by Zouaves, it is said ; it is true that the spur of a chicken may be grafted into its comb ; but in the rat experiment, we must say the difficulty of holding the patients still and without biting renders the story apochryphal.

Our author is full of anecdote ; of a certain caterpillar, he says : "There is a genuine case of a living creature becoming converted into a vegetable. It occurs in a caterpillar that lives in New Zealand and in Australia. There are several specimens at the College of Surgeons. We see a caterpillar as hard as if it was carved out of wood, and from it is growing a long stem. The history of it is as follows : The caterpillar eats a fungus, or the sporules of a fungus, and these immediately begin to grow in its inside. The beast feels uncomfortable, and possibly thinking it is going to turn into a chrysalis, buries itself in the ground, and there dies. The fungus goes on growing and absorbing the entire contents of the skin, taking the exact form of the creature. Having done this, it throws out a shoot, and this always at a certain fixed spot, namely, at the pole at the back of the head. This caterpillar is found also in China, where it is used for food."

A barber told Mr. Buckland that he was in the habit of selling the human hair clipped from customers at six pence a bushel to a farmer, who declared that the places where he had put the hair did not require manure for three years afterwards.

HYBRIDIZING.

BY WM. N. WHITE, ATHENS, GEORGIA.

In the preceding article we endeavored to establish that the vine presents unusual obstacles to cross fertilization. In the present, we shall give the evidence we promised, that hybridizing, though readily effected in certain exceptional and rare cases, is *in general* by no means an easy matter ; and that when effected, the beauty and brilliancy of our greenhouses and flower gardens may be greatly increased ; still the vinegrower or orchardist can expect little benefit. We shall also at the same time endeavor to show why this process has been thus successful in the domains of Flora,

while in those of Pomona "the efforts of the hybridizer are yet to be heard from," and in conclusion, touch upon the most successful method of originating new varieties of fruit.

I. As in the nature of things there are reasons why we should not expect fruitful hybrids to be numerous, for if man could without limit produce crosses, species and genera would soon be obliterated, and unlimited confusion supplant the present orderly arrangement of nature; so do we find in fact that hybrids are not common, while fruitful ones are still more rare. In the animal kingdom, no man's wealth will be much increased by the progeny of his mules. In the vegetable world, I for one do not expect our markets to be freely supplied with, or our goblets to overflow with, the juices of hybridized fruits. What is the testimony of those botanists who have made this subject a speciality? "The experiments of Kohlreuter on the hibiscus and cucurbitacæ prove that there are certain species that cannot be crossed," (De Candolle. Veg. Physiologie, p. 704.) "Many cases are recorded of nearly allied species refusing to intermix. Mr. Knight could not succeed in effecting a cross between the common and the Morello cherries," (species nearly allied, with blossoms convenient for operating,) and Dr. Lindley records his vain endeavors to cross the gooseberry and currant. Such plants as the apple and pear, the raspberry and blackberry, though very closely connected have not been known to intermix," (Lond. Hort. Mag., quoted in Horticulturist, July, 1848.) "It might be expected that hybridization would be much more easy in diœcious than in hermaphrodite plants; the females, being more removed from the males, ought more readily to receive a strange pollen; but M. Lecoq remarks, that the observed facts seem contrary to this expectation, there being very few hybrids of diœcious plants; as if being more exposed to mixture they are protected by an organization more fixed which admits the action only of the pollen of its own species," (D. C. Veg. Phys. p. 705.) "These circumstances" (to wit, different species not blooming together—the necessity of the stamens of the plant acted on being removed, fertilization taking place under special integuments, and the preponderating influence of a plant's own pollen,) "render natural hybridization more rare than one thinks," (ibid. p 706.) "Hybrid fecundation in general is less perfect than natural. Gaertner cites many proofs. In cross fecundations made by him with the greatest care upon nineteen flowers of Nicotiana Langsdorfii, fertilized with N. Marylandica, and also in fourteen of the same fertilized with N. paniculata, only five succeeded. In nine of the same species, fertilized with N. quadrivalis, only one succeeded; in some cases, however, all succeeded," (ibid, 714.) The nicotiana, or tobacco tribe, by the by, is one of the easiest to cross. "The number of fertilized seeds in each fruit in cross fertilization is much less than in those which are natural; thus the papaver somniferum contains ordinarily two thousand seeds, crossed with the glaucium luteum, only six were found," (ibid.)

Again; "Recent experiments have led to the following results: (1.) It is a much more difficult operation to produce hybrids even under every advantage than is usually supposed. The number of species capable of being impregnated even by skillful management, is very few; and in nature the stigma exerts a specific action which not only favors and quickens the operation of the pollen of its own species, but resists and retards that of another, so that the artist has not only to forestall the natural operation, but to ex-

perience opposition to his conducting the artificial one. (2.) Even when impregnation is effected, very few seeds are produced. Still fewer of these ripen; and fewest of all become healthy plants, capable of maintaining an independent existence. (3.) The offspring of a hybrid has never yet been known to possess a character foreign to those of its parents; but it blends those of each, whence hybridization must be regarded as a means of obliterating, not creating, species. (4.) The offspring of hybrids *are almost invariably barren*, nor do we know of an authentic instance of the second generation maturing its seeds. (5.) In the animal kingdom, hybrids are still rarer in an artificial state; are all but unknown in a natural one, and are almost invariably barren." (Hooker and Thompson's Flora Indica, quoted by A. Gray, in Silliman's Journal, January, 1856.)

"With regard to the facility with which hybrids are produced, the prevalent opinions are extremely erroneous. Gaertner, the most recent and careful experimenter, who appears to have prosecuted his inquiries in a most philosophical spirit, says, that *ten thousand experiments upon seven hundred species produced only two hundred and fifty true hybrids.* It would have been most interesting had he added how many of these produced seeds; how many of the latter were fertile, and for how many generations they were propagated." (J. D. Hooker's Flora of New Zealand, quoted in Silliman's Journal, vol. 17, new series, p. 335.)

Finally, "Any continued effects of hybridization in uncontrolled nature seems to be thoroughly guarded against in two ways; first, by the *constitutional debility if not the invariable* sterility of the hybrid offspring, rendering it of transient duration; secondly, by the fact that when prolific at all, they usually become so through fertilization by one or the other of the parents when the offspring reverts to that specific type." (A. Gray, Silliman's Journal, 17, p. 344.) Such is the evidence that *in general* hybridizing is no easy matter. Whether the vine is a special exception I do not care just now further to discuss as with the present evidence my own opinion is unchanged. Five years will show, (with so many zealous experimenters in the field,) whether to hybridize it is in general a practicable thing, and whether such hybrids if obtained would be of any value. But these points I will not entirely pass over now.

II. We know there are a *few* genera, such as Rhododendrons, Pansies, Fuchsias, Roses, Verbenas, &c., in which the species do readily hybridize. These genera are very few; but our critics insist that the vine is one of them. Grant it for the moment, will not "the constitutional debility, if not the invariable sterility of the hybrid offspring" be likely to render it useless in the vineyard? If a plant, in the greenhouse or flower garden, have even but a moderate constitutional vigor, sterility renders it all the more desirable. In a fertile plant, says De Candolle, the withering and fall of the coral of a flower is determined by a perfect fertilization, and takes place more or less promptly as the fecundation is more or less complete. Then all the accumulated nourishment and juices of the plant go to perfect the seed. If no fecundation, or an imperfect one takes place, a part of the juices of the plant continue to nourish and sustain in beauty and freshness the corollas already expanded, while the remaining elaborated nourishment is diverted to the formation of new flowers. It is from not seeding freely that, in the case of double flowers, each individual flower continues longer expanded before withering, a fresh succession of blooms is thrown up, and

still the plant is far less exhausted than if it had borne seed. Single dahlias continue in bloom but a short time, and each flower is transient, and the small tubers show how little nourishment is laid up for another season. The double dahlia on the contrary, blooms through the season, and in this case, as in general, the more double the flowers of a plant may be the longer will each flower remain fresh ; the more continuedly will it be in flower ; and if a perennial, the better state will it be in for blooming finely the ensuing year. Hybrid plants seldom or never producing perfect seed, their unfertilized flowers retain the nourishment nature destines for the germ, gorging the existing petals with accumulated juices ; another portion of which often goes to develope new petals, rendering the flower more or less double ; or if the plant still remains single, yet from the same cause, (its sterility,) presenting a like persistance, profusion, and renewal of its bloom. To produce and ripen its seed, is the greatest drain upon its vitality to which a plant is subjected. Annuals and biennials, if not suffered to seed, can often be made of perennial duration. On the contrary, who has not seen vines and fruit trees which have exhausted themselves and perished in maturing too large a crop? But the hybrids of the flower garden being generally subjected to the most favorable conditions as to care and nourishment, especially as they are seldom taxed with maturing seed, can be kept in health and beauty even if there does exist some tendency to constitutional debility. Here, then, hybrids are deservedly great favorites, and the accomplishment of more than we expected from our efforts in hybridizing flowering plants has led us to expect more than we are likely to accomplish by our efforts in hybridizing fruit bearing ones. While our fruit books are filled with the names of chance seedlings of great excellence, *the labors of the hybridizer thus far have given us only the promise of good things to come.* Not a single hybrid fruit is yet in general cultivation.

Do we owe much more to cross-breeding? Of the nearly three thousand varieties described in the new edition of Downing's Fruits, are there thirty that with any show of reason are claimed to be cross-bred? Of these, are there over three first class fruits? All the results of Mr. Knight's trials in crossing the pear, with one exception, (Pengethby,) are placed by Downing in the third class among the rejected. Mr. Berckmans writes me, that "Dr. Brincklé has tried cross fertilizing. I have all his grafts, over five hundred with pedigree and lineage. His chance seedlings from good pears, supercede all his laboriously fertilized ones, most of which present a very dubious character, some being entirely wild, slender or sickly." No one will claim that the proportion of good fruits hitherto raised by crossing varieties has been greater than from the chance seedlings of the same varieties without cross impregnation. If Providence had left mankind from the creation until Knight was born to depend upon cross fertilization for good fruits, very possibly he might have been born into a world where no fruit trees were left to be crossed. They would already have been exterminated as worthless.

To originate improved varieties of fruit, let us then no longer look to hybridization ; for if the operation is successful, the resulting plant is very likely to be debilitated, if not sterile ; neither to cross fertilizing varieties, for the manipulation requires the nicest care ; and, as we have seen, is quite uncertain in its results. Even if as is claimed we could in hybridizing, thereby combine all the separate excellences of the two species crossed, ("and the offspring of a hybrid has never been known to possess a charac-

ter foreign to its parents,") we could at best obtain in the result *only the sum of the excellences of the two parents.* So in crossing varieties. By what blending all the excellences of the two best pears existing seventy-five years since, could we have reached the matchless flavor of Belle Lucrative or Seckel? Could any crossing among our harsh and worthless native grapes by combining existing flavors, have produced such grapes as Lenoir and Warren? And yet without the slightest proof of such intermixture, and still less of a foreign cross, what a number of really valuable native varieties have sprung up the last few years. These fruits are not merely the sum of existing excellences. Even the Isabella is something more than equal to Fox grape plus Summer grape; and in Delaware, Lenoir, Warren, and Rebecca how vast is the advance.

III. How, then, shall new varieties be obtained? Obviously by following the practice of those who already really have succeeded. Let us take advantage of the tendency to sport, more or less inherent in all fruit-bearing plants, that have already left in some degree the wild state, or which, while still wild and harsh, are by cultivation subjected to new influences and conditions. It is not enough, however, merely to sow the seeds of good fruits, as "Poiteau tells us, that Duhamel during the long course of his scientific career planted the seeds of all the best fruits which were eaten at his table, without being able to produce a single fruit worthy of cultivation. The Alfroys had during three successive generations adopted the same course, and with no better success," (Kenrick.) Van Mon's first seedlings, also from the old decayed varieties, such as Choumontel, St. Germain, &c., Mr. Berckmans informs me, gave him no good result, but returned at once to their wild state. He presently found, other things being equal, "the older a pear is of any cultivated variety, the nearer will the seedlings raised from it approach the wild state." "He was more successful in the progeny of these wildings, but still more so when he resorted to the seeds of the then recently improved varieties originated by Duquesne, and Hardenpont, &c. From the seeds of such renovated varieties as Glout Morceau, Napoleon, Marie Louise, and especially Passe Colmar, his best pears were derived. Passe Colmar was considered the standard of good seeds, and its generations have filled our catalogues with most delicious fruits." In originating improved varieties, he found "the art to consist in regenerating, in a direct line of descent, and as rapidly as possible, taking care that there shall be no interval between the generations." He says, to sow and resow, in short, to do nothing but sow, is the practice to be pursued, and which cannot be departed from; and in short this is the whole secret of the art I have employed." Again, "the result of attempts to vary is to ameliorate: a fruit ceases to change only when it can be no further ameliorated, and becomes fixed at its ultimate point of perfection." "I have arrived at a point, as I had foreseen, where, instead of as at first gaining only one good fruit among an infinity of bad, I have only one, or rather no bad among an infinity of good or tolerable." "Those who have followed my method, and sown seeds of my new varieties, have already obtained some excellent fruits." Van Mons tried all fruits, but Mr. Berckmans states, "soon left all except the 'rebel' pear tree. He told me, that after three generations of peaches, plums, and apples, *all were* good and that 'it was disgusting' to stick to such experiments. He was enamored of difficulty, and found the pear just the thing to keep his energy of mind alive." This method pursued by Van

Mons was so successful, that in the words of de Jonghe, "to him we are indebted for a greater number of fine pears than have been handed down to us from all previous ages, and from all the nurserymen and pomologists of modern times." At the death of Van Mons, all his remaining seedlings passed into the hands of A. Bivort. During his life, his grounds having been three times encroached upon by public works, he gave freely to his correspondents in America, Belgium, and France, of his seedlings still untested. Among the recipients were Manning, Poiteau (800 at once). Tougard, Demeraire, Diel, Drapiez, Millot four or five hundred, Bonnet and Leon le Clerc of Laval. From these originated the best of the French (so called) seedlings. In the sum of the results of the Van Mons theory, we must include then not only the great number of choice fruits that have his name attached to them, in our Catalogues and Fruit books, but likewise those credited to Bivort and others who came into possession of his seedlings. Consider also that every year is still bringing for the first time into fruit desirable varieties of the Van Mons collection. Add to these the numerous varieties originated by Esperin, Berckmans, and his other disciples, and tell me if he was not right in his theory, *that the seeds of newly obtained or renovated varieties are more apt to produce good results.* Why in a little garden in Jodoigne, Gregoire, by dropping promiscuously a few seeds of recently obtained varieties of the pear, has reared at least twenty sorts of great merit. (L. Berchmans.)

Before Van Mons or his theory existed, his practice had been in a manner successfully inaugurated. I refer to the successive reproductions resorted to in forming our American orchards (See Downing, Fruits, p. 7). Our fathers brought from the old world seeds of their best fruits. Probably the immediate seedlings of these, like the first trials of Van Mons, returned in a measure to their wild state. Still from the best of these seedlings, the children of the colonists as they moved westward, or opened new lands at home, planted their own orchards. In this manner—by sowing and resowing—have been produced our unrivalled American apples. Even our Cherokee Indians within sixty years have thus raised more fine varieties of the apple ("of surpassing quality," Charles Downing says,) and suited to our climate, than there are cross-bred fruits described in our books. Thus originated such pears as Seckel, Sheldon, Ott, Tyson, Kirtland, Dix, Kingsessing, Brandywine, and Washington. Are there as fine ones to be met with among those cross-bred? In like manner have been produced all we need desire in the way of cherries and plums, and a list of peaches Europe cannot rival. In this immediate section, the seedling peach orchards have furnished a list of Clings as large as that of your Catalogue's, equal in flavor, and prolonging the peach season here fully two months. By a collection made in a single season, from a wider area, the duration of good Freestone varieties was equally extended. We have already alluded to the rapid amelioration our native grapes are undergoing. The best of these are of unknown parentage, (except as to the species,) but the Louisa, Mary Ann, Diana, Tokalon, Anna and Emily sprung from recently obtained varieties, while the Concord seems to have been raised from a wilding, exactly on the Van Mons method. So successful have we been in gaining good varieties of fruit by these repeated reproductions, that we could to-day give back to Europe more and better varieties than we have retained of those she has originated.

Is it not, then, evident to those who have followed me through this long article, that if we wish to gain still more improved varieties, we will do

well to sow the seeds of an improved fruit, recently originated, and trust to nature and chance for the result? In this way we have hitherto done passably well. The hybridizers, I wish, may do as well or better. Gentlemen, if you have already done so, bring on your grapes.

MORE NOTES ON PEARS.

BY JOHN B. EATON, BUFFALO, NEW YORK.

Among the few varieties which I had an opportunity of observing and tasting last season, were several of those sorts which have not yet become so widely known as to be considered *old*, respecting which I myself am always glad to obtain information, and assume that the same desire exists with others of your "parish."

The extremely unfavorable season undoubtedly detracted much from the excellence of some sorts, and rendered them smaller than they would otherwise have been. Not less marked was its influence on the gross amount of the crop, leaving many trees which should have fruited without a single specimen, and others with but enough for a taste. Still individual trees were finely loaded, among which I now remember a Doyennè d'Eté, a Flemish Beauty, a Bartlett, and a Beurré d'Anjou, which were perfect spectacles of fruitfulness. The two former were standards (planted in 1849), the others dwarfs.

The Beurré d'Anjou I was well pleased with. Although not quite so high-flavored as some of the specimens which I have seen in Boston (and much smaller owing to the large crop), its nearly uniform size, fine appearance, and profusion of fruit, with the fine growth, and habit of the tree, formed a combination of good points much to be desired. I have fruited it two or three times before, but in small quantities, and generally under unfavorable circumstances. I find that trees received for Doyenné Boussock have proved to be of this variety. Not a *very near* approach to correctness in nomenclature.

Fruit, rather large, irregular obovate, nearly covered with dull brownish red, somewhat russeted, stalk short, stout, and curved. Calyx small, open, basin deep and regular, flesh a little coarse, very juicy, melting, and subacid. Very good. Last of November.

Beurré St. Nicolas (or Duchesse d'Orleans) promises to prove a fine fruit. I ripened but one specimen last season. It served, however, to remind me of former fine specimens. Fruit large, oblong-pyriform, greenish-yellow, stalk 1½ inches long, stout, curved. Calyx closed, basin shallow and irregular. Flesh not very fine grained, juicy, melting, and subacid. Last of September. Very good.

Beurré Superfine is another fruit of fine promise. Having had but a specimen or two at a time, I cannot speak of its bearing qualities with certainty, but have the impression that it is a little shy.

Fruit large, pyriform, dull yellow, slightly russeted. Stalk 1½ inches long, stout, curved. Calyx very small, basin narrow and rather deep. Flesh somewhat coarse, melting, and subacid. First of October. Very good.

Colmar Precoce fruited last year for the first time, and appears to be identical with the Jaminette.

Columbia does not fulfil its promises. A few years since the specimens

were large, fair, handsome, and good. Of late they are of moderate size, and crack badly—not like the cracking of the White Doyenné, but with long and large cracks penetrating nearly to the core, as I have seen Van Mons Leon le Clerc and other sorts affected.

Doyenné d'Eté, as I before stated, bore a large crop, and the fruit was of better quality than I have usually found it. It grows finely, forming a vigorous upright tree, nearly as erect as a mountain ash. I have rarely been able to color it well, and have scarcely ever seen it so brilliant as it has been figured in colored plates.

Fruit small, roundish-turbinate, greenish yellow with a slight blush in the sun. Stalk long, slender, calyx small, erect, basin shallow. Flesh a little gritty, juicy, melting, and sweet. Very good. Middle of August.

Duchesse de Berri (d'Eté) improves upon acquaintance. I at first did not think it any acquisition, but it has since proved to be quite good, although from its small size and later maturity than the last described sort, I do not consider it of much value. Fruit small, turbinate, yellow, with a little russet. Stalk short, rather stout. Calyx small, open, basin shallow and indistinct. Flesh coarse, melting, very juicy and sweet. Very good. Ripe about the tenth of September.

Fortunée fruited for the first time, and proved a larger fruit than I had supposed it to be, being about the size and shape of a large Belle Lucrative. It ripened in the latter part of December, I think, and was of good quality; but having neglected to make any memoranda respecting it, I am unable to describe it.

Oswego Beurré fruited profusely, and most of the specimens were of fine size, some of them very large; but notwithstanding its reputation of being a fine pear, *not one* was eatable. This has now fruited for several years, and I have never yet found a specimen which I could rank higher than "indifferent," a fact for which I am unable to account.

Fruit large, roundish, sometimes rather flattened, stalk short, stout, inserted in a deep cavity. Calyx rather large and open, basin deep and rather wide, skin bronze yellow, considerably russeted. Flesh coarse, wanting in juice, astringent, and scarcely edible. November.

St. André fruited well, and proved good—not so fine, however, or so large, as I had been led to expect. It being its first year of bearing, I hope for an improvement in both respects.

Suzette de Bavay, I verily think, is rather a humbug. It is very small, the best specimens being about as large as Duchesse de Berri, the smaller ones mere buttons. It keeps pretty well, and is of fair quality, having a very sweet, pleasant flavor; but for a winter pear its exceeding smallness renders it undesirable.

Swan's Orange is an annual disappointment to me. Its large handsome fruit leads one involuntarily to expect an interior of at least fair quality, corresponding in some degree with the prepossessing external appearance; but all the specimens that I have tasted have the invariable insipid acidity which I have become persuaded belongs to the variety. If it is anywhere else of "very good" quality, I should be gratified to know it.

Fruit quite large, obovate, tapering obtusely to the stalk, and somewhat irregular. Stalk generally short, stout, and obliquely inserted. Calyx pretty large, partially closed. Skin fine golden yellow, with russet streaks and patches. Flesh coarse, juicy, not very melting, and of a quite acid flavor. Indifferent. October.

Triomphe de Louvain is a pear which I have not before seen, and I do not remember to have heard it named. It bore a most abundant crop, and is externally a rather prepossessing fruit, having much of the appearance of the Fulton. Fruit medium, or rather large, roundish, considerably flattened. Stalk quite short and stout. Calyx large, open, with short erect segments. Skin dark brownish russet, paler in the shade. Flesh coarse, rather dry, and of a flat, indifferent flavor. October.

Rateau Gris., or Beurré de Louvain, is an enormously large fruit, somewhat resembling in form and size the Catillac, but with a dark green skin, covered with large rough dots, and much russeted. It keeps quite late, and cooks finely; but is quite as inedible as a turnip in a raw state, the flesh being hard, dry, and tough. It is fit for cooking all winter; but I have never succeèded in ripening one. It is somewhat addicted to cracking.

Triomphe de Jodoigne has fruited two or three times, but has invariably been blown from the tree before reaching full maturity.

Van Assche has proved, so far, quite small and not very enticing, either in appearance or flavor. The tree is not in a very vigorous state, however, and the fruit may improve with the health of the former.

Fruit medium size, sometimes quite small, roundish-turbinate, greenish yellow, dotted, and tinged with red. Stalk of moderate length, rather slender, inserted in a slight cavity. Calyx small, open, basin wide and shallow. Flesh coarse, a little gritty, tender, juicy and sweet. Good. October the first.

Vicompte de Spoelberch has not yet come up to its reputation. It has never proved better than "good," and rarely that, sometimes being quite inferior.

Fruit scarcely medium size, obtuse pyramidal, generally one sided, pale yellowish green. Stalk long, curved. Calyx small, closed, basin wide, rather shallow. Flesh juicy, not very melting, with a pleasant but rather insipid flavor. Indifferent. November.

THE MARKET GARDENERS OF LONDON.

"The market gardeners of London," says a gardener of judgment, "are skillful, industrious men. Some time ago I was engaged for three or four months along side a market garden of twelve or fifteen acres in the neighborhood; things were exceedingly well done. In it there were small frames to the number of fifty or sixty lights, the greater part of which were full of young lettuces sown in November as thickly as mustard and cress. The lights of course were off in the day, and the young stuff looked green and beautiful. The greater part of the garden or land, which is light and workable at all times, had been turned up to the weather. About the 1st of March they put about half of the garden in long beds six feet wide, and about eighteen inches apart. These were sown with turnip radish seed, a bushel to the acre, and finished well. Two lads with pistols and rattles, and voices strong enough, were employed running up and down the garden to keep the birds off.

"The men next nicely smoothed the other half of the ground with rakes, for the reception of the lettuces, the London or Brighton cos, which were planted a foot apart all ways. They were planted so beautifully and exactly that they seemed to be in straight rows from all points of view. The frames

were then put on half sunk new beds of warm dung, and into them were planted cucumber plants which thrived and bore well; a money-making crop. The radishes were ready about the first week in May, if I remember aright, and sold for 40*l.* an acre; twelve or thirteen women were employed in bunching them. The lettuces were soon ready; got a bit of bast about them a few hours before they were pulled, and sent to Covent Garden; brought 10*l.* an acre more than the radishes. Vegetable marrow succeeded the radishes, and French beans the lettuces, generally speaking. After these came a crop of cabbage, or what are called coleworts, for winter. There were small patches of other vegetables—here a bed of rhubarb, there a corner of cauliflower, and just against the gate a rood of ten-week stock, the double ones for cut flowers and the single ones for seed."

KINGSESSING PEAR.*

Leech's Kingsessing is a synonyme of this fruit; origin in the grounds of Isaac Leech, near Philadelphia. Fruit large; obtuse-pyriform, or truncate conic; skin greenish yellow, thickly sprinkled with minute green or gray dots; stalk medium or long, curved, and fleshy at its insertion in a broad, uneven cavity; calyx closed, set in a shallow, irregular basin; flesh whitish, somewhat coarse and granular, juicy, buttery and melting, with a sweet, rich, perfumed flavor; ripe in September.—*Charles Downing.*

DOWNER'S PROLIFIC SEEDLING STRAWBERRY.

At the request of J. S. Downer, proprietor of Forest Nursery, near Elkton, Ky., we, the undersigned, met at his house on the 29th day of May, 1858, to examine a seedling strawberry raised by him, and now bearing its third crop of fruit, and after a careful examination of the plants and fruit, and a comparison with a number of the most popular varieties of this fruit under the same state of cultivation, such for instance as McAvoy's Superior, Hovey's Seedling, Hooker's Seedling, Burr's New Pine, Myatt's Deptford Pine, Longworth's Prolific, etc., we submit the following report and description:

Vines remarkably large and vigorous, of a pale green color, resembling Peabody's New Hautbois; fruit-stalks long and erect, fruit of the largest size, roundish oval, of a bright scarlet color. Flesh moderately firm, rich, juicy, highly flavored and excellent. Ripens early, and continues in bearing for a long time. Flowers hermaphrodite.

We regard the introduction of this strawberry, which we propose to call Downer's Prolific Seedling, as a triumph. Its productiveness surpasses any thing that we had ever conceived of in this fruit. We counted upwards of fifty very large, ripe berries upon a single plant, with a great number of unripe ones, in the various stages of development, from the bloom to the perfect berry, and this, perhaps, was not more than an average of the entire bed.

Some of us have had considerable experience in strawberry culture, and

* See Frontispiece.

we are unanimously of the opinion that, taking all the qualities of this strawberry into consideration, it is, for this latitude, worth more than every other variety of this fruit with which we are acquainted.

L. B. Hickman, M.D.
H. W. Darnall, M.D.
E. S. Stewart, M.D.
A. Webber, M.D.
B. E. Randolph.
S. C. Mercer.

Elkton, Todd Co., Ky.

State of Kentucky,
Todd County, S. Ct.

I, Ben. T. Perkins, Clerk of the Todd County Court, for the County and State aforesaid, do hereby certify: That I have this day examined the original certificate, of which this is a true copy; and I do further certify, that I am well acquainted with the aforesaid Committee, and I unhesitatingly say they are among the best citizens of our section of country; they are gentlemen noted for their scientific and legal attainments.

In testimony whereof I have hereto set my name,
(Seal.) and affixed the seal of said County Court,
this the 23d day of June, 1858.

Ben. T. Perkins,
Clerk Todd Co. Court.

CAN PEARS BE PROFITABLY GROWN FOR MARKET?

BY F. R. ELLIOTT, FORMERLY OF CLEVELAND, NOW OF ST. LOUIS, MISSOURI.

Under this head Mr. L. F. Allen has recently detailed his experience in the planting and growing of pears. As Mr. Allen says, "one swallow does not make a summer, neither should one man's experience condemn or substantiate the policy and profit of pear growing." It is now about sixteen years since I commenced planting pear trees to produce fruit, and without any of the enthusiasm with which Mr. Allen says he was imbued. I argued against planting the pear except when grown upon *seedling* pear stocks. To the use of Suckers, or Apple-mountain Ash, Quince, or Thorn stocks, as likely to produce a long-lived healthy tree with the ordinary American orchardist's cultivation, I was opposed; and as a nurseryman at the time, I reduced my receipts very materially by such opposition. I argued that the orchardist should select such varieties as grow moderately vigorous upon the pear stock, and on that stock which came early into bearing. Of such I planted, not by hundreds or thousands, but by dozens. I obtained fruit in three years from planting; and those trees, less ten per cent, are now in existence and bearing annually moderate crops. The soil was gravelly sand underlaid with more or less of bog iron ore.

In 1848–9, about the time of Mr. Allen's enthusiastic commencement, and when all the Horticultural and Agricultural Journals teemed with Dwarf Pears and the profits of growing them, I commenced an entirely new plan—

soil, mostly a stiff clay loam; subsoil, stiff yellow clay, by many considered a most unpromising soil for any purposes of fruit growing. At that time the sort of stock for dwarfing was a question open to as many different views as is the subject now under consideration; and being then in the nursery business, I budded Pears on White Thorn, Mountain Ash, Common Seedling, Quince, and Angers Quince. Of such propagating, I sold to suit the wants of my customers, and planted out pretty extensively of trees one year old from the bud upon each and all of these stocks. As a matter of experiment also, and to help decide the question as to what varieties would do well as dwarfs, I planted from three to five trees of a sort of something over two hundred sorts. My soil was simply subsoil ploughed, (it should have been underdrained,) and my trees mostly planted so that the stock, whatever it was, was all underground. The results have been as follows: All lived; many grew the first season. The second season, many sorts without regard to stock died. Some twenty or more kinds grew finely. The third season, all on Mountain Ash. Thorn and Seedling Quince departed this life; and many of the sorts on Angers also; others stood still. The fourth season, and on to this year, most of them have fruited abundantly. Many of the kinds, however, became stationary in their growth, while others continued healthy and vigorous. At this time, therefore, I can say that out of my planting nine or ten years since, there are only about one hundred or one hundred and ten kinds. Of these, perhaps twenty sorts may be said to have grown healthily, and sufficiently vigorous, while of the remainder, many have not increased in size for the past four years; others have grown beautifully less.

About the same time, or perhaps one year later, I planted out something over two hundred Standard Pears; these, however, of only a few sorts. The result has been that my Standards have produced for three years a quantity full as great as I have considered desirable, and the trees continue healthy and vigorous.

Cultivation. My Dwarf Pears have been annually manured in the fall; and the manure lightly forked or spaded under. In the spring they have been hoed; and during summer some have been mulched with new-mown grass; others have been regularly hoed around, say once a month. Pruning has been done whenever I found it convenient. I prefer August or October, but practice to suit my convenience. Many of my sorts, when I had three or five of a kind, I have left one tree without any pruning. Such course I cannot advise, as the tree runs up too high, compared with its breadth; and while it does not break off, its leverage is such as often to loosen the ground and break many of the small roots of the quince stock.

I have in this time lost two trees by insect blight, and four or five trees by blight of cimistration.

Like Mr. Allen, I consider this story "a very useless one," but in order to help make up the "summer," I have concluded to give your readers my experience.

RHUBARB—WHICH IS THE BEST?

BY C. W. GRANT, NEWBURGH, N. Y.

To the child of twenty years since, the word Rhubarb was suggestive of anything rather than the most delicious pastry. And when late in the season, wanting the brisk-flavored, aromatic Spitzenberg or Newtown Pippin for a refreshing dietetic pie, which a dinner of roast beef always calls for—and these could not be had—the small, tough, stringy, footstalks of the old Turkey Rhubarb came to be used as a bad substitute. But the "change of the name" to "pie plant" did not work a "change in the thing," nor could the skill of the pastry cook so far obscure the flavor and odor peculiar to the root of that variety, with which the stalks are always in some degree flavored, that the idea of the apothecary's shop was not always too sensibly present at its use.

John Bull, perceiving the rudiments of great excellence in this candidate for the cuisine, and stimulated by his wants, resolved to attempt by cultivation and improvement to obliterate the forbidding feature of its character. Of the steps taken in the progress of amelioration, and the names of varieties produced, no mention need at present be made, until we come to the "Victoria," which was originated by Mr. Myatt, of Deptford. This fully realized the highest hopes entertained of its improvement; having no vestige of offensive odor, of gigantic size, and very productive. It was largely imported, and very highly valued; still it was covered with a thick skin which was some trouble to remove, and was rather troublesomely acid, besides coming much later than some of the smaller varieties.

The next great improvement was in a variety originated by Mr. Charles Downing, at Newburg. It was named Downing's Colossal; and in addition to its great size, and much less degree of acidity, it had a fine, rich, aromatic flavor, in which it greatly surpassed all predecessors. This, too, has been surpassed by Mr. Myatt, in the "Linneas," whose excellence in every important characteristic has placed it for the last four or five years in rank far before any other variety—Mr. Downing himself, greatly preferring it to the Colossal, which is its nearest competitor, and to which it has a strong resemblance. Besides being the earliest of all, and most productive, as well as finest flavored, and least acid, it has a skin so thin that removing it is quite unnecessary, and its pulp when stewed has the uniform consistence of baked Rhode Island Greening, and it continues equally crisp and tender throughout summer and early autumn.

Although the cultivation of Rhubarb for market is quite simple, it has some wants that must be complied with to secure a profitable crop. It delights in a rather retentive soil, but is so much earlier in a dry, light, or porous soil, that opinions would differ as to the most advantageous. The ground must be well manured, and if well worked with a plough, to the depth of eighteen inches, a very remunerative crop may be obtained, ranging at from two hundred to four hundred dollars per acre, in the latitude of New York. As earliness is important, a locality more southern would be advantageous.

To obtain the best results, more care and expense than just indicated are required. If the ground is deeply worked, (to the depth of three feet,) and well enriched, the quantity produced per acre is almost incredible—but at least three times as much as can be obtained by ploughing alone—with the

further advantages of some days in earliness, as well as superiority of quality, in favor of trenched ground.

A plan which I adopted a few years since, may perhaps be advantageous under similar circumstances. I trenched a field of nearly an acre for Pears. In such cases the ground needs cultivation, and should be occupied, until the trees require it all, by some crop that does not injure the trees, or exhaust the ground for their future use. I found the Rhubarb a very pleasant and profitable occupant of the spare room, and not sensibly injurious to the Pears. The cultivation may be done by the horse cultivator in early spring, but soon the leaves of the Rhubarb will so cover the ground that a little pulling of weeds will be all that can be required.

For a few years past, supply and demand have both been rapidly increasing, and with about equal pace. The best methods of preparing it for the table, either for pies or sauce for meat, or as a stewed fruit for the tea table, like the Tomato, requires some skill and judgment on the part of the housewife, for if its acidity is entirely overcome by simple refined sugar, it becomes too rich or concentrated for free and abundant use, which when well understood will be no more restricted throughout the entire year than that of the Tomato; and when its preparation and use are as well understood, it will not be esteemed second to that *Fruit* in usefulness, nor be absent many days in the year from the table where it is *known*. I do not hazard much in putting forth the opinion, that as a tonic, dietetic aperient, it has no equal. On the great western prairie, and wherever acid fruits are not abundant, it will be invaluable.

The chief feature in the produce around London, tending towards market, is carts in inconceivable numbers, loaded with Rhubarb, even there during the short season of the Gooseberry, eclipsing that of its competitor, which there in its perfection has an excellence to us unknown.

AMERICAN POMOLOGICAL SOCIETY.

The Seventh Session of this National Institution will commence at Mozart Hall, 663 Broadway, in the City of New York, on Tuesday, the 14th day of September next, at 10 o'clock, A.M., and will be continued for several successive days.

Among the objects of this meeting are the following: To bring together the most distinguished Pomologists of our land, and, by a free interchange of experience, to collect and diffuse such researches and discoveries as have been recently made in the science of Pomology—to hear Reports of the various State Committees and other district associations—to revise and enlarge the Society's catalogue of Fruits—to assist in determining the synonyms by which the same fruit is known in America or Europe—to ascertain the relative value of varieties in different parts of our country—what are suitable for particular localities—what new sorts give promise of being worthy of dissemination—what are adapted to general cultivation; and, especially, to concert measures for the further advancement of the art and science of Pomology.

The remarkable and gratifying progress which has recently been made in this branch of rural industry, is in no small degree attributable to the establishment and salutary influences of our Horticultural and Pomological Societies, the proceedings of which have been widely promulgated by the

Press. A great work has been already performed, but a greater still remains to be accomplished. It is, therefore, desirable that every State and Territory of the Union and the Provinces of British America should be ably and fully represented in this Convention, and the Pomological, Horticultural, and Agricultural Societies, within these limits, are hereby requested to send such number of delegates as they may deem expedient. Nurserymen, Fruit growers, and all others especially interested in Pomology, are also invited to be present, and to participate in the deliberations of the meeting.

Held as this Assembly will be, in the great commercial emporium of our country, easily accessible from all parts of this continent, and at the same time when the Convention of the Editors of the Agricultural Press will be in session, it is anticipated that the attendance will be larger than on any former occasion, and the beneficial results proportionably increased.

In order to increase as much as possible the utility of the occasion, and to facilitate business, members and delegates are requested to forward specimens of fruits grown in their respective districts, and esteemed worthy of notice ; also, papers descriptive of their mode of cultivation—of diseases and insects injurious to vegetation—of remedies for the same, and to communicate whatever may aid in promoting the objects of the meeting. Each contributor is requested to make out a complete list of his specimens, and present the same with his fruits, that a report of all the varieties entered may be submitted to the meeting as soon as practicable after its organization.

For the purpose of eliciting the most reliable information, the several Fruit Committees of States, and other local associations, are requested to forward to Hon. Samuel Walker, General Chairman of the Fruit Committee, Roxbury, Mass., or to P. Barry, Esq., Secretary of the Society, Rochester, N. Y., a definite answer to each of the following questions, at an early date, and prior to September 1st :

What *six*, *twelve* and *twenty* varieties of the Apple are best adapted to a family orchard of *one hundred* trees, and how many of each sort should it contain ? What varieties, and how many of each, are best for an orchard of *one thousand* trees, designed to bear fruit for the market ?

What *six* and *twelve* varieties of the Pear are best for family use on the Pear stock ? What varieties on the Quince stock ? What varieties, and how many of each of these, are best adapted to a Pear orchard of *one hundred* or of *one thousand* trees ?

What are the *six* and *twelve* best varieties of the Peach for a family orchard ? What are the best varieties, and how many of each, are best adapted to a Peach orchard of *one hundred* or of *one thousand* trees ?

Answers to these questions should be made from reliable experience, and with reference to the proximity or remoteness of the market.

Societies will please transmit to the Secretary at an early day a list of the Delegates they have appointed.

Gentlemen desirous of becoming members can remit the admission fee to Thomas P. James, Esq., Treasurer, Philadelphia, who will furnish them with the Transactions of the Society. Life Membership, twenty dollars ; Biennial, two dollars.

Packages of Fruits may be addressed to Wm. S. Carpenter, Esq., 468 Pearl street, N. Y.

Marshall P. Wilder, President, *Boston, Mass.*
P. Barry, Esq., Secretary, *Rochester, N. Y., July* 1, 1858.

EDITORS TABLE.

To Contributors and Exchanges, &c., &c.

Communications, Letters, Catalogues, Periodicals, &c., &c., intended for the perusal of the Editor, should be uniformly directed to the HORTICULTURIST, *Germantown*, (*Philadelphia,*) *Pa.* Packages by Express, &c, should be directed to the Editor, as above, by name ; they will thus reach him almost beyond a doubt.

CANADA AND THE CANADIANS.—We have as Horticulturists remarkably little knowledge of the doings of our near neighbors, the Canadians. Prompted by a strong desire to ascertain what they were accomplishing, we have paid them a visit recently, and shall have something to tell in our next of their great proficiency in the culture of fruits and flowers, in doors and out, a proficiency far beyond our anticipations.

EXCUSES.—During an absence from home, our table has become loaded with communications, letters of valued correspondents, &c., &c., all of which shall secure attention as soon as possible. The extent of the duty must be our apology to those who do not immediately hear from us.

FRUIT GROWER'S SOCIETY OF WESTERN NEW YORK.—The meeting held at Rochester, on the 30th of June, was an interesting one. Strawberry cultivation was freely discussed, and a vote taken, which resulted in the following:

FOR AMATEURS.		FOR MARKET.	
Hooker,	12	Early Scarlet,	8
Burr's New Pine,	7	Crimson Cone,	7
Early Scarlet,	7	Wilson's Albany,	7
Hovey's Seedling,	4	Genesee,	5
Wilson's Albany,	4	Hooker,	4
Genesee,	5	Hovey,	4
Jenny Lind,	2	Cushing,	2
McAvoy's Superior,	2	Scott's Seedling,	2
Triomphe de Gand,	2	Iowa,	2
Peabody's Seedling,	2	Longworth's Prolific,	2
Trollope's Victoria,	2	Burr's New Pine,	2
Walker,	1	Walker,	1
Crimson Cone,	1	Fremont,	1
Cushing,	1	Peabody,	1
Chilian,	1	Triomphe de Gand,	1
Richardson's Cambridge,	1	Chilian,	1
Longworth's Prolific,	1		

The conclusion regarding the curculio seems to have been that, shaking the enemy off is the best course. He has attacked the pear and cherry. A light dressing of salt and ashes was recommended round the trees in early spring.

Pinching the pear was recommended, and a discussion had on pruning the grape, in which the established systems were more or less recommended. The cherry was stated to have become

diseased and sickly in Western New York, and the diseased state of the peach trees and the curled leaf was lamented. Mr. Barry thought there was no cause for discouragement, and that the old and diseased trees should be replaced with those young and vigorous. The finest climates in the world, he remarked, even Florida and Italy, have periodical changes and extremities which destroy staple crops.

Fruit growing has its troubles as well as every other business, but persevering men like the members of this society will conquer them if anybody can.

TERRA COTTA ORNAMENTS.—A most estimable lady has called our attention to an able artist in Terra Cotta, and we are anxious to make him better known to our readers. Mr. Terry, No. 1194 Broadway, New York, is an Italian, educated for and with peculiar qualifications for modelling either original articles required or copying the best specimens, and he is extremely desirous to introduce his manufacture, which is perfectly adapted to stand our climate. He produces Statues, Fountains, Vases, and in short everything that can be demanded in his line for ornament, and we will add that unless he receives immediately some patronage he will be obliged to leave America. He has fixed his establishment so far up Broadway that he has been little noticed, but we are sure those who visit him will be gratified with the progress the art is now making among us. His flower pots are so ornamental as alone to be worthy of a visit. *See his advertisement.*

THE "EXAMPLE AND A BIT OF ADVICE" in our June number has been well received by the gentleman who prompted it. His reply is of sufficient interest to allow of an extract or two for general benefit. He says: "The rage for speculation, too long rife in our favored land, has hitherto stifled, in a great measure, the love of rural pursuits. But as the nursing of trees, fruits, and flowers is found upon examination to be more captivating than the race for the 'Dollar,' the indications around us are unmistakable of a growing fondness for this communion with nature. Perhaps, therefore, not the least beneficial result of the late financial storm, is the impetus it has given in the American bosom to that taste for rural enjoyment which for centuries has been a 'ruling passion of the mother country.'

"Specially was I pleased with the advice to drive the cart of berries to the depot one's self, 'should Jacob be sick,' as this conforms to my own notions of the *true dignity*, and *independence* of country life. With me a very important advantage of a residence in the country is this very independence, the let-your-neighbor-alone-spirit which prevails there. True comfort in the country is embraced in that comprehensive, blessed word, *freedom*. Freedom from the artificial restraints and conventionalities of city life; freedom from the pomps and affectations, the flummery and fudge which such a life too often engenders; freedom to behold in the gorgeous sky in the fullness of splendor of the rising and setting sun; freedom to drink in the beauties which God has lavished over hill and plain; freedom to *breathe* and to *think*, to *talk* and *act* in deference only to the manifest laws of decency and right, and in the dignity of manhood, without measuring one's breath, moulding one's thoughts, twisting one's tongue, and shaping one's actions in servile obedience to the capricious mandates of silly fashion."

Our valued correspondent has the right views; their publication is due to their excellent appreciation of the true objects to be combined in a country residence. We all know how much

> "Our sleeping visions, waking dreams,
> Receive their shape and hue from what
> Surrounds our life."

An agreeable writer says: where the counsels of wisdom preside over parental love, where those whom God has united remain in unity under the bonds of a beautiful affection, than which

> "All other pleasures are not worth the pains;"

where woman appears in her true gentleness, and the children grow up in the love of parents and the fear of God, *there* is a home of taste, a home of virtue, of mental discipline, a home of moral worth, and domestic affection, and religious aspiration. Round it all the Muses sing; the

simplest things acquire grace and meaning; vulgarity, meanness, and vice dare not cross the threshold—ennui cannot find its way there, petulance is smiled out of countenance, and temper is rebuked by little ruddy faces and curly heads of hair, and eyes that sparkle with enjoyment. . . . . Who then would not have a home of Taste? If you have it already, dear reader, prize it, and continually strive to make it more and more perfect.

A GARDEN BOX OR TUB.—The ever recurring round cedar tub for lemon trees, myrtles, &c., &c., may be varied very beautifully in a simple manner. The makers of paper hangings employ square carved blocks with the pattern of the paper well developed, some with flowers, running vines, and designs appropriate to the purpose. By taking four of these, of different patterns if you please, nailing them together, and putting a rim at top, and a bottom, you have a good and most substantial box. Next paint and sand it, and when completed, with its tree growing, it represents a stone carved vase, and but for the shape might serve for a "Maltese." The blocks are thick, and consequently heavy, but such boxes answer also very well to stand a potted plant in. Altogether it is quite an adaptation of a worn out article to a useful and ornamental purpose. The old blocks, and those "out of fashion" are generally burned. Thus, with the use of spent hops for mulching, and these old blocks, two worthless articles may be introduced to practical value.

THE WANDERING JEW.—A little runner with an ivy leaf and neat flower, which is perfectly hardy in our latitude and still further north, the *Linaria cymbalaria*, sometimes called the Wandering Jew, is a great favorite. In a wall it becomes a perpetual object of beauty; it will grow between stones, or bricks, about a cellar window, and at the foot of the wall it makes partially successful attempts at climbing. We commend it to the attention of amateurs.

CHRYSANTHEMUMS.—The Chrysanthemum is becoming extremely popular, new interest having been created by the increase of varieties, and by the knowledge of the best modes of culture and training. The best are placed in ten-inch pots, and trained so as to hide the latter with foliage and flowers, presenting more the appearance of well grown Chinese Azaleas than of Chrysanthemums under ordinary management. This is effected by judicious training, which is commenced about the middle of August after they have received their final shift, and continued as may be requisite until they have fairly set their bloom. Under this treatment the plants are literally masses of flowers, none of the buds having been thinned out. Thus a good succession is obtained and the plants have a more natural appearance, and last longer in beauty than if they had been disbudded, as is sometimes done in the case of plants for exhibition when one bloom only is allowed to a shoot.

THE ILLUSTRATED BOUQUET, LONDON.—There are now three quarterly numbers of this illustrated work issued—June, September, and February, with five large "Bouquets" in each. The Bouquet of Gloxinias has ten kinds in it. That of new Fuchsias, last February, has four most splendid flowers, two light and two dark kinds; *Rose of Castile* and *Guiding*, being the two whites; and *Prince Frederick William of Prussia* and *Loch Katrine*, the two dark ones; *Begonia Rex* occupies one page itself, as also does a magnificent figure of *Eucharis amazonica*; another Bouquet is filled up with two new large double Petunias, which were shown last summer at the Regent's Park, by Mr. Grieves, of Culford Hall, one of which is compared with that of a double Hollyhock, the other with a Camellia-flowered Balsam, together with a new hybrid Begonia, between *Fuchsioides* and *Ingrami*, "a fine addition to the shrubby-habited Begonias which are in the hands of Messrs. Bainbridge and Hewison, Nurserymen, York." The new *Gesnera cinnabarina* makes a "Bouquet" of itself, and a most brilliant nosegay it is. *Gesnera densiflora*, another new one, introduced by Linden, in the way of *elongata* and *Monochætum ensiferum*, make up another gorgeous picture of a nosegay of rose, orange, crimson, scarlet, and yellow, with two shades of green leaves on the white ground of the page; altogether a drawing-room drawing, and the written account is plain common sense,

and business-like, while the information about culture, propagation, and the proper kinds to grow, read exactly as if it were printed from a large memorandum book full of dog's ears—but looking fresh from the potting bench, or from a shelf in the propagating house—all simple, sound, and single-handed, that is to say, nothing is taken for granted, but everything is tried and proved in the establishment before it is recommended. None but the best kinds of the most popular plants are figured in these "Illustrated Bouquets," and the best selections of each family are given under each Bouquet. The work may be procured of G. M. Thorburn, Newark, New Jersey.

ACHIMENES AND GLOXINIAS.—Mr. Beaton describes his method of treating these favorites, thus:

We manage a select collection of Achimenes, and a very choice assortment of hybrid Gloxinias, without forcing, and the way we do them may be confidently relied on.

We have them in bloom in the conservatory from the end of June to the latter part of September; but they would do in the smallest greenhouse just as well, and also in living-rooms, where Geraniums are flowered. When the bloom is nearly over, we keep the pots rather dry; and as the flowers and foliage begin to look seedy, we move them out of sight to the top shelf along the back wall, close up to the light, and under the constant draught of air, in and out, night and day, till after the middle of November; by that time the soil is as dry as Scotch snuff, and the "roots" are as thoroughly ripe as if the pots were in an Orchid house.

After the roots, or tubers, are thus ripened, we have proved most conclusively that they will keep all through the winter as safely and as long as late Potatoes, if they are kept quite dry, and free from frost, and from the influence of the air. The whole secret for resting Gloxinias and Achimenes for a very long period, or from the fogs of November to the April showers, is to keep them carefully excluded from the air. The simplest way to do that is to shake all the soil from them, and to put each kind into a separate bag of coarse paper, with its name, or tally, or number stick, along with it; the name might also be written on the outside of each bag. The mouth of each bag is tied as close as a bladder, and all the bags are put loosely into a basket, and the basket is put by in a warm closet in-doors. I have grown thousands of seedling Gloxinias before there was a hybrid in the family, and had my share of them ever since; but I confidently assert, that I never had a finer or more plump looking set of bulbs than I saw last week, when one set of the Gloxinias were unbagged.

IMPROVEMENTS IN FLOWER POTS.—For all the common purposes of plant cultivation, the Flower Pots in general use are all that can be desired; but there are many tribes and plants which do not thrive in our hands without difficulty; and others, again, which we desire to grow to greater perfection than usual, in which the structure of the pot is no mean question. The culture of the Heath, the Epacris, and other hard wooded plants, has so far not only baffled the majority of our cultivators, but also baffled them in this, that they can give no satisfactory explanation of the failure. They are supposed not to be able to endure the heats of our summers, yet the temperature of their places of natural growth often exceeds our own. Mr. Buist, in his valuable Catalogue of Select Greenhouse plants, just issued, says of the "Erica," "they delight in a very sandy, dark soil, and in an elevated northern climate, and to be protected from hot suns, and heavy rains." Such being our friend's experience, it is more than probable that the constant dryings and waterings which our hot suns entail on these delicate rooted plants, is one great cause of their failure; and equally probable that a peculiar form of flower pot would supply the defect. Some years since, the English growers invented a pot with hollow sides, by which it could be filled with water when occasion required; but as we have heard nothing of it for some time past, it has probably been found in some respects objectionable. Our friend Colonel D. S. Dewey, of Hartford, in a private letter, makes a suggestion which we think might be turned to good account in this connection. He says:

DEAR SIR,—Judging from certain items in your monthly "Gossip," and also from sundry

illustrations in the *Horticulturist*, *passim*—I have decided that ideas combining novelty and utility are always pleasing and interesting to you. For this reason, I took the liberty of introducing to your notice, in December last, a description of my invention for postmarking letters, &c.; and now I propose to call your attention to another "crotchet" of mine, having reference to what I think may be an improvement in Flower Pots.

I propose to substitute any reasonable number of smaller holes, in place of the one hole in the bottom of each flower pot as now made. One object of this is, to insure more uniform drainage and aeration; and another is, to incline the rootlets or plants to a more natural and spreading growth.

I propose that flower pots for certain classes of plants should be made with a flange, of the same material, projecting a little from the outside edge of the bottom of the pot all around, and then turned up, say to half the height of the pot, and say an inch distant from it all the way; thus leaving the pot free, as to drainage, and port holes for roots, (through which to shoot,) but with a small reservoir of water in the deep saucer, the object of which is to supply the lower half, (more or less,) of the soil, &c., inside of the pot with moisture from the external surrounding of water; and, also, incidentally, to check evaporation, (which, by the way, is often of much more consequence than may be supposed by many.) In place of water in this lip, or saucer, wet moss, or some similar substance, may be placed for this last-mentioned purpose.

As a further illustration, place a flower pot six inches high, and with an average diameter of four inches, inside of another flower pot three inches high, and average diameter of six inches, and cement the bottoms closely together, making the drainage holes to correspond exactly.

Yours truly, D. S. DEWEY.

APIOS TUBEROSA.—This tuber is again discussed as a substitute for the potato. It was called Glycine Apios by Linnæus; Apios tuberosa by modern botanists, and *Saa-gaa-ban*, by some of the North American Indians, is a small trailing, tuberous perennial, with pinnated leaves, narrow lanceolate leaflets, and small brownish purple flowers, rather sweet-scented, and growing in axillary racemes, which are shorter than the leaves.

It is described by North American botanists, as growing in damp, rich soils, along the margins of swamps in Carolina (Elliott, "Fl. Carol." ii. 232), and in moist shady places from Canada to Florida, west to Missouri (Torrey and Gray, "Flora of North America," i. 282); but Pursh asserts that it inhabits *hedges* and mountain meadows from Pennsylvania to Carolina ("Fl. Amer. Sept." ii. 473). Its roots, that is to say, its tubers, are described by Elliott as *small*, and as having formed an article of food to the aborigines; Nuttall calls them "oblong cylindrical tubers, edible and farinaceous, much like those of *Lathyrus tuberosus*, sold in some of the German markets, and rarely larger, though very numerous" ("Genera of North American Plants,"

ii. 113); Pursh is the only author that we can find who speaks of them differently; he says, that the roots "sometimes grow to an enormous size."

The plant itself is no stranger to our gardens. It is figured in the "Botanical Magazine, t. 1198, and in other works. A rude woodcut, indeed, is to be found as early as 1640 in Parkinson's "Theatrum," fol. 1062, at which time the plant was cultivated in England under the name of "*Terræ glandes Americanæ sive Virginianæ*—Virginia Earthnuts." The latter appellation seems to indicate in what estimation the plant was then held; it was regarded as a mere curiosity, with a "tuberous browne roote, which multiplies itself into sundry others."

When examined microscopically, the tubers are found to consist principally of a mass of large oval, very thick-sided cells, filled with starch, among which are scattered irregularly in the centre several woody bundles, composed of strangulated porous vessels of considerable size, very irregular and unequal laticiferous vessels, also much strangulated, and a few spiral vessels. Near the circumference, just within the bark, these bundles are arranged in distant narrow plates, forming short rays, and offering indistinct traces of concentric zones. A considerable quantity of truncated prismatical raphides is found among the cellular tissue; and around the central bundles of woody tissue are series of prosenchymatous cells, which seem chiefly to contain gum.

In a raw state, the tubers taste like Earthnuts, or perhaps between an Earthnut and an Acorn. When boiled, they are firm, sweetish, of a dirty yellow color, and in texture and flavor, may be compared to a mixture of sweet Chestnuts and Parsnip.

It may be readily cultivated, but it is not a large tuber till the second year; some think it not entirely wholesome. Have any of our correspondents tried it?

How to Raise Seedling Pears.—Planting Pear pips for the purpose of raising new varieties, is a very interesting employment. Some 8-inch pots should be kept at hand filled to within an inch of their rims with tolerably fine mould, and when a fine Pear is eaten or one decays the pips should immediately be planted in the pots about half an inch deep. A piece of perforated zinc or woven wire should then be placed over the pot, to keep out the mice and birds, and allow the rain to enter. The pots may remain out of doors all the winter. In March or April the young plants will make their appearance, the wire covers may then be removed, and as soon as the young plants have made six leaves they may either be potted into single pots and planted out in a rich border in May, or at once transplanted from the seed pot to the border. They will, if the soil be rich, each make a shoot from 1 to 2 feet in length the following season; this will make a graft or grafts, which should be grafted on strong stocks on the branches of bearing trees, and in a few years fruit may be expected.

The raising of Pears from seed may be made much more interesting if the sorts from which they are raised be known; for this purpose only one kind should be sown in a pot and its name placed with it. In a very few years they show their origin in their leaves and shoots, and seem to go in races. I have at this moment a number of seedlings raised from Ne plus Meuris, they nearly all look alike, some of them have born fruit exactly like their parent; one or two, however, much larger, but unfortunately they ripened in October, and were not remarkably good. I have also a batch of seedlings from Beurrè d'Aremberg, these with one or two exceptions, are apparently of the same race; one of them bore some fine fruit the past season, exactly like the Beurrè d'Aremberg, but they ripened on the tree the first week in September, and were of the most delicious flavor, so that if an early Pear of the same flavor were wanted it would be an acquisition. Seedlings from Passe Colmar and Glout Morceau retain their family likeness in their habits very remarkably, and this will account for many of the new Pears being so much like our older varieties; there are some eight or ten new Pears of the Passe Colmar race, among our new sorts ripening at different periods, and nearly as many of the Glout Morceau tribe, among which Beurrè Bachelier seems hardier than its parent; Victoria later, and so on.

To me, a lover of Pears, it is most interesting to watch the development of character in seedlings, and I beg earnestly to recommend the raising of them, in the manner I have directed, to those of your readers who have leisure—a garden, and are gardening lovers. Disappointment must be expected, for a fine looking seedling Pear will often prove anything but fine in flavor. When young trees give their first fruit the best method is to ask your friends to the first tasting, and then if they prove very bad indeed it gives occasion for a hearty laugh. I once had a seedling raised from Hacon's Incomparable, which was as large as a Catillac Pear, or say a moderate-sized garden Turnip, and of a bright orange color. I watched it with intense interest, and when it ripened invited my neighbors to the tasting: in doing so I think we all burst into a roar, for it was a horrid compound, in which acid and bitter and sweet struggled hard for the ascendancy. I have had other laughable adventures with seedling Pears, but hope in gardening matters never flags.—*T. Rivers.*

FUMIGATION MADE EASY.—First, as to the fumigating material. Buy some good *leaf* tobacco. Mind, leaf, *not* roll. Next, make "touch" of it. Every boy, whether he be a growing boy of fifteen, or a grown boy of thirty, knows how to make "touch." But as your lady readers may not be so wise, I will, for their sake, add, that the way to make "touch" is to take some nitre and dissolve it in warm water. About a table-spoonful of crushed nitre to a pint of water. Steep brown paper in this solution, dry it, and you have TOUCH. Now, instead of brown paper steep the tobacco leaves in the solution, and then dry them. You have then "touch tobacco," which will burn rapidly, without fumigating bellows or any other implement of the kind.

The plan I follow is this: I have an old flower-pot with a hole pierced through the side on a level with the floor. Then, inside, I have a piece of perforated zinc, to prevent the tobacco from falling to the bottom, and thus choking the draught of air through the hole. I place a couple of lighted matches on the perforated zinc, throw in the touch tobacco, rush out of the house, shut the door, and keep it so till morning.

I have often tried, and succeeded, by laying the matches on the floor, and heaping the touch tobacco over them; but of all the plans I tried, the old pot is the best. I have just done it now, and I suppose that the time which elapsed, from my going into the house and leaving my fumigator in full operation, was not two minutes.

Some friends, to whom I have communicated it, have found it most useful as well as easy. The nitre evidently adds to the effects of the tobacco.—*Simplex.*

ON PLANTING DWARF PEAR TREES.—When it was first recommended to plant them so deep that the point of junction of the graft, or bud and stock, should be beneath the surface of the ground, I conceived the plan to be a good one, and did not hesitate to put it in practice myself, or to advise my friends and customers to do so; after a trial of some five years I regret to be compelled to say my experience falls far behind my anticipations of the benefit I expected to witness.

Without any equivocation or mental reservation I now denounce and henceforth abandon the practice; and it is for the benefit of those whom I may by my advice have led astray, as well as others who may not have had any experience in the line of planting, that I now give and record the result of my own.

One half or more of all the trees I have thus planted, in from one to three years, have rotted off at the point where the bud was inserted; this is particularly the case with all those that are slow growers on the quince stock.

Nor is this all; I have killed a few which had been planted in the ordinary manner, by heaping the earth up around the trunk, and all by rotting as above mentioned.

There are a few varieties which have succeeded and grow very well, but they are the hardy vigorous varieties, such as Louise Bonne de Jersey, Rostiezer, Duchess D'Angouleme, &c., which you know will grow almost any way.

Those that have thus far lived do not appear to grow any more vigorously than do those which were planted at the depth they grew in the nursery, and if there is any difference it is in favor of the latter.

All that I can say in favor of the practice, is, that it hides the ugly appearance in those cases when the tree outgrows the stock; a very small matter, when brought alongside of the loss of a large portion of the trees planted, as my experience testifies.

I hope others may have had better success than your humble servant; were it necessary I could give you the similar experience of some others, but prefer to hear from those having had longer and more extensive trials, in other sections of country.—*J. Van Buren, Clarksville, Ga.*

RHODE ISLAND HORTICULTURAL SOCIETY.—Our report of the June exhibition of this Society, gives us reason to believe it is one of the best they have ever held. The Roses were especially fine and numerous. Mr. H. S. Mansfield contributed fine peaches from an orchard house, Zante currants, and Guava jelly made from fruit raised by himself, quite superior to the imported. Figs, strawberries of the best kind, and the rarer products of the greenhouse were most abundant.

THE LONDON ROSE SHOW.—Up to the time of going to press, we have not, of course, received the account of the London Rose Exhibition, which took place in early July. Thirty-six silver cups were the prizes. An amount of interest was awakened, the results of which we shall record in our next issue.

POMOLOGICAL SOCIETY.—Especial attention is called to the circular of the American Pomological Society on page 375. This meeting will be an important one.

Mr. W. N. White's article on Hybridizing is full of information; it will well repay perusal.

HORTICULTURAL SOCIETY OF MORRISANIA.—J. JAY SMITH, Esq.—As doubtless you feel interested in every thing passing round you, horticulturally, we take pleasure in informing you, that we have just succeeded in organizing a Horticulturist Society in this village. At the preliminary meeting, F. W. Gilley, Esq., of West Morrisania was chosen President, *pro tem*, and Wm. H. Wilcocx, Esq., the originator, Secretary. Great enthusiasm prevailed, and it was declared most emphatically, that it was desirable and feasible to establish a society on proper principles.

A grand September Exhibition is proposed, which will beyond doubt be a success, especially as most of our substantial residents have taken great interest in the matter. The name of the society is the "Horticultural Society of Morrisania."

Respectfully, JEFFREYS, JR.

Morrisania, July 20, 1858.

CATALOGUES, &C., RECEIVED.—Descriptive Catalogue of Fruit and ornamental Trees, Shrubs, Roses, &c., cultivated and for sale at the Coverdale Nurseries, Dr. Edward Taylor, proprietor, Cleveland, Ohio. A well considered list.

Journal of the United States Agricultural Society for 1857. Edited by Benjamin Perley Poore. Washington, 1858.

Illinois State Fair, at Centralia, Marion County. Regulations and Premiums—to be held on Sept. 14th, 15th, 16th and 17th. Fifteen thousand dollars are offered in premiums.

New Jersey State Agricultural Society. List of Premiums and Regulations of the Fourth Annual Exhibition, to be held at Trenton, Sept. 14th, 15th, 16th, and 17th.

Premiums and Regulations of the 9th Annual Fair of the Warren County, Ohio, Agricultural Society. To be held at Lebanon on the 28th, 29th and 30th of September.

Effects of Carburetted Hydrogen Gas on a collection of exotic plants. By George W. Fahnestock. From the proceedings of the Academy of Natural Sciences, Philadelphia.

Synopsis of North American Willows. By N. J. Anderson, Professor of Botany in the Univer-

sity of Stockholm, Sweden. Cambridge, Mass. No doubt published under the auspices of Dr. Gray, and it is full of research.

Statistical Illustrations of the past and present condition of Lancashire, England. By Henry Ashworth, Esq. Highly curious.

Letter from David Landreth of Philadelphia, to the Commissioner of Patents. Biting and strongly put.

Cotton: Its cultivation, manufacture, and uses. A paper read before the Society of Arts, London, March 1858. By Henry Ashworth, Manchester, 1858.

Address before the Chester County Horticultural Society, June, 1858. By Z. Collins Lee.

Wilcox & Felt's Descriptive Catalogue of Fruit Trees cultivated and for sale at the West Feliciana Nurseries, Bayou Sara, Louisiana. A very fine and surprising collection.

ERRATA.—In the article on grapes, written by W. T., Germantown, New York, in the last number the following errors occur: 33d line "in cleaning up hedges I frequently have occasion to dig out," should have added "many an ancient fox grape apparently three score and ten;" and in 34th line, "top roots" should read "tap roots; 37th line "arranged," should read "occasion;" 43d line "badly," should read "boldly."

ANSWERS TO CORRESPONDENTS.

BIGNONIA VENUSTA.—P. P. T.—The treatment of this fine stove-climber requires that it should not have too much pot room. Confine the roots, give it poor soil and plenty of water during the growing season, and keep the temperature at that time at about 75° by day and 10° less by night, and you will have no reason to complain of want of bloom. In autumn it requires to be cut in rather freely, as bloom is produced on shoots made the same year. The branches should be spread out so as to cover a trellis, or hung below the glass to show the full effect and allow plenty of light to get to the leaves, instead of being tied in a bundle, as is often done. It is one of the most showy and beautiful objects that you can possess.

PRIMULA MOLLIS.—ADELINE.—This is a most beautiful plant with large cordate leaves of from two to three inches diameter, covered with soft hairs. From the centre of this large tuft of leaves springs up the flower stem, which attains about a foot high, and all along it are whorls of handsome flowers of a fine purple colour, which last a long time in perfection, and as the lower stem grows higher, the blossoms keep coming out. It is really a beautiful thing, and should be in everybody's garden.

VINE BORDERS.—S. W.—We can give you, perhaps, no better advice than the following, which we clip from Dr. Lindley's newspaper: Were I to make a Vine border, the following would be my plan: First, I would commence inside the house near the front wall, and excavate to the depth of twenty-one inches and to the width of nine feet. I am supposing the front wall to be on arches, which I should stop for the present with rough brickwork. On the surface of this excavation, which should have a fall of at least six inches, I would place a good layer of some hard material—cement, concrete, broken slates bedded in mortar, or in fact anything to prevent the roots from going downwards. A trench nine inches or a foot should be dug here the whole length of the house, thus securing good drainage. At this point, nine feet from the front of the house, and at the side of the trench nearest the border, I would run up a brick on edge wall, leaving openings in it through which any superfluous moisture might pass into the trench. In this way a box would be provided nine feet wide and eighteen inches deep, with good drainage the length of the house; this might be filled with a compost something like the following: Fresh turfy loam, rather stiff than otherwise (but not clayey), about a third flakey leaf mould and good dung, not too rotten; also a liberal supply of brickbats, broken stones, or

charcoal. By, say March, this would have settled, when I should plant the young Vines, one to each rafter, first soaking their balls and carefully washing all soil from their roots, which should be barely covered with compost and watered slightly with a rosed pot. I should now cover the whole border a few inches in depth with droppings from an old Mushroom bed. As the Vines commenced and continued growing the border should be watered occasionally with weak liquid manure, giving enough at each watering to wet the whole mass. I need scarcely add that the atmosphere should be kept moist. In autumn at pruning time the droppings and loose soil should be raked off down to the roots, when I would substitute a top dressing of good fresh loam and a moderate sprinkling of guano, mulching with droppings as before. This I would do annually until I found that my border was either too full of root or the Vines required more to feed upon, when I would add three feet more to the border outside the arches in front of the house, or at the back inside, of course filling up the trench and making another if required. It will be observed that I have not given over stimulating food to the young Vines or in great quantities, because I hold that a moderate amount well digested is better than a larger quantity and of a richer kind than the system requires. My chief object is to keep the plants and soil in a healthy state, and to have complete control over the whole, both root and branch. If these instructions are followed there need be no fear of the result. D. D.

E. H. COCKLIN, Black Hawk co., Iowa.—Your grass is Tricodium laxiflorum; named from the Greek word for hair, on account of its capillary inflorescence.

M. R.—The beautiful trailing plant from the White Mountains is Chiogenes hispida, or Box-berry, and you will find it highly ornamental for rock-work, &c., &c.

E. Y. TEAS, Richmond, Indiana.—Spirea tomentosa. In forwarding plants it is well to include a flower, and to say whether native or foreign.

A SUBSCRIBER, New York.—After your Strawberry seeds have dried in a bed of pure sand about a month, sow them in a light soil, in a partially shaded spot. Carefully water, and in winter protect them with a covering of straw; in spring, transplant them, one plant in a place and two feet apart; carefully remove all runners until the plants have borne; select the best for trial. If means exist, a better plan is to sow the seeds and sand in a cold frame in a northern exposure, and transplant as above.

S.—Your plant is Styrax grandifolium, a most valuable, hardy, fragrant plant; we should be especially obliged by your forwarding us a few seeds.

J. L. S., Virginia.—Pray send the flower or fruit. The leaves are not a sufficient guide always. Is it an annual?

GOSSIP.

THE amount of fruit trees that may be placed in a small garden has frequently been noticed. A recent paragraph from California will be remembered by our readers. We now find it stated that a Mr. Caprotte, near Paris, has three thousand yards long of trellis covered with the Chasselas de Fontainbleau grape, producing him annually on small premises two thousand five hundred dollars.

WE regret to announce, says the *London Gardener's Chronicle*, the decease on the 10th, at Turnham Green of Mr. George McEwen, in the thirty-eighth year of his age. During the fourteen months that he acted as Superintendent of the Garden of the Horticultural Society he evinced so much skill and energy as to make it a subject of the most lively regret that so great a spirit should have dwelt in so frail a body.

THE good that might be done by teaching the use of one's eyes to the young is illustrated by

the Rev. J. S. Henslow, of England, who has a school in which poor children are instructed in Botany and the names of trees and plants. He has lately offered two prizes to his scholars of twenty-five dollars and fifteen dollars for the best collections of dried wild flowers and plants growing within four miles of the school. When shall we have teachers in our public schools who know a willow tree from a gooseberry bush.

THE Messrs. Henderson, of the Wellington Road nurseries, London, says a correspondent, have the following new plants:

A new Aucuba, from Japan, as hardy as *Aucuba Japonica*, with as large, if not larger, leaves, and all the leaves as dark green as those of the Portugal Laurel. This will make a splendid addition to our hardy evergreens. It was got over by Dr. Sicholst, who has an experimental garden at Bonn, on the Rhine.

A new *Rondeletia*, from China—perhaps the free-flowering kind; but it is very different from *Rondeletia Championi*, having leaves more like a Portugal Laurel on long footstalks, and with the underside as glaucous as the leaves of *Magnolia glauca*.

A new *Conoclinium*, with leaves more like those of *Gesnera zebrina*. *Gardenia citriodora*, having the growth like *Burchellia Capensis*, and flowering in clusters at the joints of last year's wood, pure white, and as wide as a shilling. A most valuable acquisition to our sweet-smelling plants. Blue *Allamanda* is here also.

They have also *Chamæcyparis thuriferæ*, which is selling off like "wild fire." This was the Conifer which was balloted for at the Horticultural Society. *Cupressus Lawsoni*, *McNabiana*, and *Bregeoni*, *Thuja gigantea* (Low), and ditto (Veitch); the two appear to be quite distinct. *Thuiopsis borealis*, *Podocarpus nubigena*, *Pinus Bungeana*, and many others; *Picea bracteata*, and lots of "fly flappers," or real standards of *Deutzia gracilis*, from three to five feet high in the stem. Everything is eagerly made into standards now, and gets a ready sale; this winter house is half full of standards of all kinds, and there is a most valuable sort of fountain Cactus, of the Mallisoni section. I recommend this Cactus to the whole world, and I never saw or heard of it before. It is the work of some amateur, the kind is called *Scotica*. The old plant is trained up round a pillar to a height of seven feet. D. B.

NETTLES.—Most gardeners look upon the Nettle as their enemy, and hence it has been driven forth into by places, or waste land, or the shadow of hedgerows. Nevertheless its fibre makes good linen as the Dutch have found; the leaves when young are a delicate esculent; horsedealers use the seeds to give their cattle spirit and a fine skin; and finally the roots when boiled with the addition of alum and a little salt form a good yellow dye. Thus it appears that every part of a Nettle may be usefully employed in rural economy or in art. Horned cattle find it a safe and sound food, for it is early and easy to grow; the worst soils suit it; it requires no care, will bear any kind of weather, and propagates itself. It may be cut five or six times a year; and in the spring, when cattle want food, it supplies them with it abundantly. It may be cut young, and given green; or it may be left to stand longer for hay; but in the latter case it must not stand too long, or cattle will not eat its coarse haulm.—*French Paper*.

AN inquiry instituted by the Belgian government merits attention. For some years, a notion had grown into a belief that certain manufactories were prejudicial to health and vegetation, and so much disquiet arose thereon, especially in the province of Namur, that the governor reported it to the home department at Brussels. A commission was appointed, two chemists and two botanists, who, commencing their inquiry in June, 1855, pursued it carefully for several months, confining themselves to factories in which sulphuric acid, soda, copperas, and chloride of lime were made. The two chemists watched the processes, and noted the escape of gases from the chimneys. They consider soda factories to be the most noxious, and tall chimneys more hurtful than short ones, because of the greater surface over which they diffuse the vapors; and tall chimneys, by quickening the draught, discharge gases which other-

wise would be absorbed in the passage. Hence, contrary to the commonly received opinion in this country, they hold that there is less dispersion of deleterious vapors with a short chimney than a tall one.

The botanists on their part show, as might be anticipated, that the effect on vegetation is most shown in the direction of the prevalent winds, and more during rains and fogs than in clear weather. They establish beyond a doubt the hurtful influence of smoke, due to the presence of hydrochloric and sulphuric acid, and they find that the greatest distance at which the mischief is observable is two thousand metres (a little over an English mile); the least six hundred metres. They enumerate thirty-four kinds of trees which appear to be most susceptible of harm, beginning with the common hornbeam (*Carpinus Betulus*), and ending with the alder; and between these two occur, in sequence, beech, sycamore, lime, poplar, apple, rose, and hop. As regards the effect on the health of men and animals, the commission find the proportion of deaths per cent to be lower now in the surrounding population than before the factories were established: from 1 in 58 it has fallen to 1 in 66. One reason for this improvement may consist in the better means of living arising out of the wages earned in the factories. However, the commission wind up their report with an assurance that health, either of men or horses, suffers nothing from the factories, and vegetation so little, that farmers and graziers may dismiss their fears, and the government refrain from interfering.

An ingenious mode of rearing birds is practised in France. The young birds with the nest are placed in a small cage, and tied up near the place in which the nest itself lay. I have seen the old birds come and attend to the nursing of their offspring in this way with the utmost zeal and success. When we consider how much more skillful they are in finding the best food, and administering it in the best manner, we cannot be surprised that in this way the great losses, otherwise sure to occur, are avoided.

In France, M. Beelard has made some curious experiments on the Influence of Light on Animals, and finds that those creatures which breathe from the skin, and have neither lungs nor branchiæ, undergo remarkable modifications under different colored rays. He exposed the eggs of flies (*Musca carnaria*) under bell-glasses of six different colors: little maggots were hatched from all; but those under the blue and violet rays were more than a third larger than those under the green. Frogs, which by reason of their naked skin, are very sensitive to light, give off half as much more carbonic acid in a given time under the green ray as under the red; but if the frogs are skinned, and the experiment is repeated, the excess then is with those under the red ray. Frogs placed in a dark chamber lose one-half less of moisture by evaporation, than when placed in common daylight.

MISCELLANEA.

Indicator Bee Stand.—An ingenious lover of bees has invented a plan for weighing his honey as collected, and gives the following account of his method:

Having lately devised a plan by which to increase my own enjoyment of bee-keeping, it has occurred to me that many others who take an interest in the subject may like to follow my example, and I submit herewith a sketch of an "Indicator Bee Stand," constructed with a view of enabling the bee-keeper to note the progress of a colony in honey gathering all through the season, so as to compare, if needful, the influence of a period of fine weather, say for a week or a few days, in increasing the weight of the hive. The indicator is a spiral spring fitted inside a hollow post, and on the spring is a short piece playing freely into the socket, and on this piece the hive-board is placed. A new swarm, hived in a new hive, would form the most interesting subject for a first experiment. When placed on the stand the weight of hive, bees, and board will be indicated on the dial plate by means of the finger which is attached to the spring, and

as the process of comb-making, breeding, and honey-collecting goes on, the increasing weight acting on the spring will at all times indicate the gross weight superincumbent on it. The one I have made registers up to 60 lbs., but I purpose making one to register to 100 lbs., so as to serve for a set of the large Stewarton or Tegetmeier's boxes, both of which I have and purpose stocking with double swarms this season. The construction of the stand is most simple; the hollow post is of inch stuff, and the short piece that supports the hive is carefully fitted and smoothed with black lead to make it play freely, and as its range of motion perpendicularly is only 3 inches, the action of the spring, even in taking a heavy super, cannot by any possibility cause a jerk. The spring is japanned, to preserve it from the action of the weather; without being so prepared it could hardly be expected to last through a season. The cost of the stand including spring, carpenter's work, and engraving of the plate was 18s., but any one enjoying sufficient leisure and handy in the use of tools might make it for 5s. or 6s. less. As my bees promise to swarm shortly I hope soon to set the stand in action, and anticipate much pleasurable instruction in the daily record of progress which the dial plate will afford me.—*Shirley Hibberd, in London Gardener's Chronicle.*

Bees.—It is well to place hives within a little distance of a small pond, or shallow stream; but if there is no water near, you ought to sink some large dish or milk-pan in the ground close by, in a warm nook if possible, where the sun always shines in the afternoon. Fill it with stones, or pieces of wood, for the bees to light upon, without risk of drowning, when they come to drink. They cannot do without water in spring or summer; and if they find none near, they will go long distances in search of it, especially in dry weather.

In handling bee-hives you must go *quietly* to work: touch them very gently, so as not to knock or jar them; and, above all, never *breathe* upon your bees. A knock will rouse them in a minute, but the breath of man or woman makes them vicious.

Keep on watching your bees through March and April; never let a day pass without looking after them, if you want them to do well. If they go on taking large quantities of pollen into their hive, all is well; but it will sometimes happen that they cease doing so by degrees,—less and less every day. *This is the worst possible sign.* As soon as you discover any idleness in your bees like this, and they cease carrying pollen into their hive *in spring*, you had better take up your hive at once, and get what honey you can out of it. The bees which remain in the hive (and there are often a good many of them) will do nothing but amuse themselves with flying in and out on fine days, and eating up the honey while it lasts, or till they die. The honey you see had better be stored up in your cupboard, than wasted upon idle bees. *Either the queen-mother is dead, or she is getting old and worn out.*

Bananas in Texas.—According to a Texas paper the Banana perfects itself in parts of Texas, the tree thriving as well as in its native latitude.

Nursery of Parsons and Co.—We find the following in the Country Gentleman: During a recent visit to this celebrated nursery at Flushing, Long-Island, we observed many objects of interest. It is well known as one of the best in this country. It occupies about one hundred acres of land. A larger portion than in most nurseries is devoted to ornamental trees, evergreens, &c. There is a propagating house 100 feet long, and several thousand feet of cold frames and pits, belonging to the hardy department; in addition to which there is a grapery 120 feet long; a house 40 feet long and 20 wide for stove plants and orchids; one for rhododendrons, azaleas and camellias, 100 feet long, and another for camellias exclusively, the same length; one for Ericas, Epacris, Borronias, Aphelexis, and New Holland plants, 100 feet long; another of the same length for geraniums, roses, and calceolarias; one of 50 feet for acacias, daphnes, and green-house plants; and one 40 feet for bulbs. Connected with this department there is a 100 feet propagating house, and about 400 running feet of brick and stone cold pits. These structures and the open ground contain perhaps the largest collections of

Rhododendrons, Stuartias, Andromeda arborea, &c., in this country. The cultivation of rare plants, and those of difficult propagation, distinguishes this establishment; and we observed that the grafting of evergreens was conducted with great success. We observed in flower the "*Lilium giganteum*," a new plant from the Himalayan mountains—so far as we are aware, the first that has bloomed in this country. The stem grows rapidly, was about seven feet high, and the flowers, of which there were several, were seven or eight inches long, funnel shaped, yellowish white, and streaked inside with dark purple. The leaves are cordate. It is a cold green-house plant of easy culture; the bulb of this was three years old.

A CHINESE GARDEN.—Mr. Fortune gives a curious description of a Chinese Garden in a recent letter, from which we make the following extracts:

"The plants consist of good specimens of southern Chinese things, all well known in England, such, for example, as Cymbidium sinense. Olea fragrans, Oranges, Roses, Camellias, Magnolias, etc., and, of course, a multitude of dwarf trees, without which no Chinese garden would be considered complete. In the alcove alluded to there are some nice stone seats, which look cool in a climate like that of southern China. The floor of this building is raised a few feet above the ground level, so that the visitor gets a good view of the water and other objects of interest in the garden. That this is a favorite lounge and smoking place with the Chinese, the following Chinese notice, which we found on one of the pillars, will testify:—'*A careful and earnest notice*: This garden earnestly requests that visitors will spit betel outside the railing, and knock the ashes of pipes also outside.' Several fine fruit-trees and others are growing near the walks, and afford shade from the rays of the sun. On one of these we read the following: 'Ramblers here *will be excused* plucking the fruit on this tree.' How exceedingly polite!

"Near the centre of the garden stands a substantial summer-house, or hall named the 'Hall of Fragrant Plants.' The same notice to smokers and chewers of betel-nut is also put up here; and there is another and a longer one which I must not forget to quote. It is this: 'In this garden the plants are intended to delight the eyes of all visitors; a great deal has been expended in planting and in keeping in order, and the garden is now beginning to yield some return. Those who come here to saunter about are earnestly prayed not to pluck the fruit or flowers, in order that the beauty of the place may be preserved.' And then follows a piece of true Chinese politeness: 'We beg persons who understand this notice to excuse it!' Passing through the Hall of Fragrant Plants, we approached, between two rows of Olea fragrans, a fine ornamental suite of rooms tastefully furnished and decorated, in which visitors are received and entertained. An inscription informs us that this is called the 'Fragrant Hall of the Wooche tree.' Leaving this place by a narrow door, we observed the following notice: 'Saunterers here will be excused entering.' This apparently leads to the private apartments of the family. In this side of the garden there is some fine artificial rockwork, which the Chinese know well how to construct, and various summer-houses tastefully decorated, one of which is called the 'Library of Verdant Purity.' Between this part of the garden and the straight walk already noticed there is a small pond or lake for fish and water-lilies. This is crossed by a zigzag wooden bridge of many arches, which looked rather dilapidated."

DISEASES OF THE PEAR.—The Pear has several times in this country been subject to the most fatal epidemics. Men and animals are not alone the victims of pestilence, but Nature suffers these violent perturbations through all her dominions. It is not surprising that the sudden loss of one tenth of a fine pear orchard should discourage and alarm the fruit-grower; still he ought not to forget that its cause is exceptional, and will pass away. These diseases, though prevailing for several seasons in succession, occur only at long intervals; and the period of a disease being terminated, we may usually calculate upon exemption from it for a considerable time.

Winter, or Frozen Sap Blight.—The diseases of the Pear, known by Pomologists as Leaf-

Blight, Summer-Blight, Winter-Blight, Insect-Blight, and Frozen-Sap-Blight, are generally, at present, recognized under the two latter terms, though we think the leaf-blight an entirely distinct disease. There has been so much speculation upon the causes of *Winter* or *Frozen Sap Blight*, and so many remedies recommended, that we are not prepared to adopt any of the theories in explanation of it, or any nostrum as a specific.

The pear tree is a greedy absorber of fluids, and when the warm rains of September excite its absorbents, the gourmand drinks up large quantities of nutriment, and a late and rapid growth of shoots is formed. In these succulent and unripe growths, the sap is retained without that vitality of leaf which will effect its maturity and assimilation, being thin and watery, and not sufficiently matured to enable it to resist the frost, and death ensues. In the plant as well as the animal, great length of time often elapses before the poison affects the whole system and causes death. It is not unfrequent that the tree, poisoned in autumn, survives till the July following. The bark of the trunk and principal limbs exhibits black spots; and on cutting into them, the bark and wood, for some distance beneath, are found quite dead and black.

The only remedy is, to cut away at once all of the tree that is affected, cutting below the lowest spot. But few trees attacked with this disease will be of much value, even with the best treatment that can be given them. Out of forty trees, six or eight feet high, thus affected in one season, we succeeded in saving the stumps, two feet high, of only eight or ten. These trees had been brought from a distance, and planted the fall preceding the attack, and exhibited by their large, thrifty shoots, that rapid unripe growth above mentioned.

Notes for the Month.

VINEYARD CALENDAR FOR AUGUST.

BY R. BUCHANAN, CINCINNATI, OHIO.

THE work of the vine dresser this month will be light. Summer pruning is generally finished in July, and in August, tieing up straggling branches of the vine, and keeping the weeds down, by the hoe or cultivator, is all that is necessary. By the middle of the month all apprehensions of injury from the grub are over, and the only thing to be dreaded is a hail storm. From other casualties of the climate, the crop is safe.

NOTE.—Owing to very wet weather in May, and early June, succeeded by cold nights and foggy mornings, the mildew and rot have made sad havoc in the vineyards in Ohio, Indiana, Illinois, and Missouri, destroying more than half the crop. The heavy rains whilst the Grape vines were in blossom, prevented the fruit from setting well, and left it in an unhealthy state, easily subject to injury from mildew, and laying the foundation for rot, in the larger berries not affected by mildew. The sulphur remedies could not be applied early enough in the season to afford a fair test of their value, but some persons who tried them late, thought them useful. It will take another year to decide this question.

BY WILLIAM SAUNDERS, GERMANTOWN, PA.

PROPAGATION BY CUTTINGS.—This is one of the most common and available modes of extending plants. A cutting is simply a part of a plant taken off and placed in a position to form roots, and become in all respects a living representation of the original from whence it was taken. The constitutional conditions, or special proportionate arrangements of the constituents of plants most favorable for the emission of roots, has not been determined. While, therefore, some will throw out roots under any conditions, others will do so very tardily under the most favorable circumstances.

Cuttings taken from extreme points of shoots will produce early flowering plants, and frequently a tendency to bushy and dwarf growth; those from side branches, incline to horizontal growth, and in some cases it is only by securing an upright shoot from the base of such side growing plants that upward growth is obtained. These peculiarities are not constant, and are not considered important, although occasionally useful for particular purposes.

The formation of roots is dependent upon the previous or immediate action of leaves; the best shoots therefore for propagation are those possessing a considerable portion of the organized matter consequent upon maturity, but in which the processes of growth are still in full operation; in other words, those shoots that have commenced to mature, but are possessed of healthy, active foliage.

Cuttings of young and succulent shoots, are immediately dependent upon the simultaneous growth of the stem for their successful rooting, the leaves must therefore be preserved in order to assimilate matter for root formation.

It is necessary to surround the cuttings by an atmosphere containing a uniform degree of moisture. All moist bodies, when placed in a dry atmosphere, lose moisture by evaporation. If the cuttings are subjected to aridity their contained sap will speedily be exhausted, and they will shrivel and die. Hence the practice of propagating in close fitting frames, or covering with a bell glass to ensure the required atmospherical temperature and contained moisture.

Light in excess is equally injurious, shading is requisite from strong sunlight; care is required, however, that enough light be admitted to maintain a healthy leaf action.

Every one who has experience in this mode of propagation is aware that under certain conditions, cuttings will grow and increase at top without forming roots; while under others the same kind of cuttings will produce roots without indicating the slightest symptoms of growth by external buds. Heat is the great stimulus to the vital forces of plants, and when the atmosphere in which they are placed is of a higher temperature than the soil in which they are inserted, the branches are excited to growth. On the contrary, these conditions are reversed when the soil is a few degrees warmer than the air; roots are then encouraged while the stem may remain stationary. In propagating cuttings it is therefore a good general rule, to place them in the lowest average atmospherical temperature that they will endure, to retard upward growth, and, on the other hand, to raise, by the application of artificial heat, the soil to the highest average temperature, in order to stimulate into activity the processes carried on in the vessels beneath the surface of the soil, and the more completely these conditions are secured, the greater the chances of success.

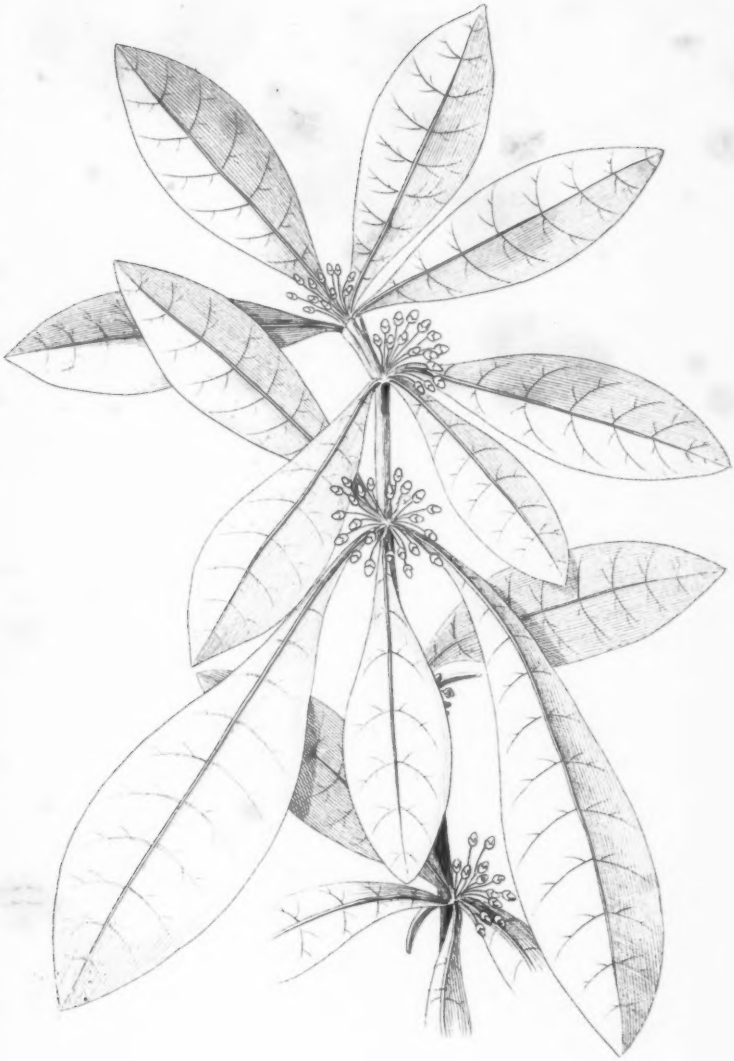
GRAPERY.—In cold houses the grapes will be approaching towards maturity. Maintain a healthy, vigorous growth, by watering occasionally with liquid manure. It is much preferable to apply stimulants at this time than to grow in a highly enriched border. The fruit will certainly not color or ripen to perfection, unless a vigorous growth and an abundance of healthy foliage is preserved. The close spurring and close pinching system of management is the principal cause of badly colored grapes. Allow the lateral growths to ramble now at will, "the maturation of the fruit is dependent upon the action of leaves and roots, and the secretions that it forms are principally derived from the former. Consequently, whatever contributes to the healthy condition of the leaves and roots will have a directly beneficial influence upon the fruit."

ROOT PRUNING.—The root pruning of trees as a means of promoting fruitfulness does not seem to meet with much favor. As a system for general culture it will not, of course, be popular, neither is it necessary. Occasionally, however, it may be practised with decided advantage. Where fruit trees are growing in very rich soil, such as in small, highly cultivated gardens, and produce annually an immense crop of branches, but no fruit, cutting off a few of the strongest roots is at once the most simple and certain method of checking growth. If this is carefully performed early this month, fruiting buds may be formed before the completion of growth.

TRELLIS WORK.—In small gardens where intricacy and variety are desired, but where the limited space prevents the planting of trees and shrubbery in sufficient quantities to effect this purpose, an expedient may be adopted in the form of a screen of trellis work covered with climbing plants. Rustic work is well adapted to form such erections, but is expensive if properly constructed, and if it is not, will soon decay. Smooth slats are perhaps preferable, and when painted of a brownish green color are not particularly conspicuous.

Screens of this kind should be put up so as to present somewhat of an architectural appearance, divided into panels by projecting piers, and the elevation relieved by mouldings, &c. In certain positions it may assume the appearance of a gate-way or entrance to a part of the grounds. Such screens may often be advantageously employed to form a division between the vegetable garden and flower beds. Much of their efficiency and appropriateness will depend upon the manner in which they are connected with surrounding objects.

For really effective growth the hardy grape vine is the most reliable; the Virginia creeper is next in order. Aristolochia sipho, Bignonia radicans, the various hardy clematis, Wistarias, &c., may be also introduced. In summer any of the free growing annual climbers may also be planted.



BUMELIA LYCIOIDES.